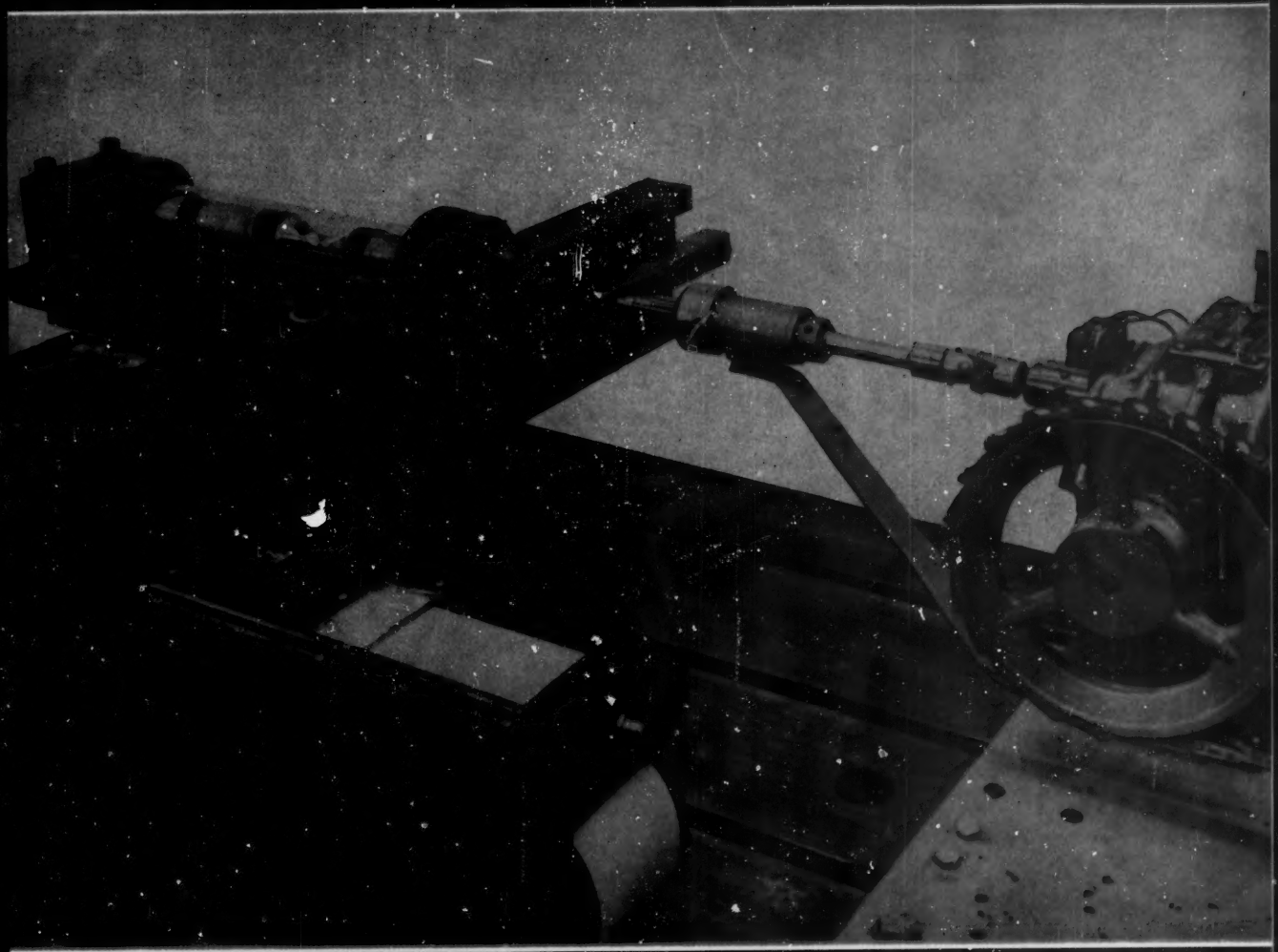
THE MAGAZINE OF

Standards



OCTOBER 1959

THE MAGAZINE OF

Standards

Standardization is dynamic, not static. It means not to stand still, but to move forward together.

VOL 30 OCTOBER, 1959 No. 10

Our Cover: This machine was built by the Ford Motor Company especially for the tests of interference-fit screw threads carried out by Subcommittee 10 of Sectional Committee B1. Tests were made on assembly of hole and stud, then the assembly was sectioned to check on the relationship of stud OD and hole OD to metal flow (see page 293).

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This publication is indexed in the Engineering Index and the Industrial Arts Index.

FEATURES

NEWS

DEPARTMENTS

. . . . marginal notes

• Organization of the Venezuelan standards body (page 298) emphasizes the importance of another event of special interest to U.S. engineers. This is the first congress of Venezuelan electrical and mechanical engineers, held at the University of Venezuela, Caracas, September 5-14. Main purpose of the congress was to inform the people of Venezuela of the role of electrical and mechanical engineers in the development of the country. The 300 delegates, including representatives from Peru, Cuba, Argentina, and the USA, were impressed by the scope and caliber of the sessions.

Both the American Institute of Electrical Engineers and the American Society of Mechanical Engineers were represented by Dr R. C. Sogge, consultant, Industry Standards, General Electric Company, and president of the U.S. National Committee of the International Electrotechnical Commission. Dr Sogge attended the congress on behalf of the International General Electric Company.

President Betencourt of Venezuela took part in the inaugural program, and four Government ministers appeared at various meetings to explain and discuss their programs.

The congress adopted and recommended use of a Spanish edition of the National Electrical Code, American Standard C1-1956, which had been translated and adapted for local conditions by the Venezuelan electrical engineers.

An interesting part of the congress, Dr Sogge reports, was an extensive exhibit by manufacturers and distributors of electrical products manufactured both in the U. S. and Europe.

"Venezuelan engineers indicated their wish to have more visits by U.S. representatives of the technical societies," Dr Sogge reports. "I told them about the part played by technical societies in engineering progress in the United States and gave them lists of publications they can obtain." Dr Sogge also assured them that the USNC heartily supports their application for membership in the IEC.

"Most of the engineers who were particularly active in the congress were young and were reaching for ways to do more and get ahead faster," Dr Sogge commented. "This is the time when more experienced engineers can help them develop their program along the most effective and practical path."

This Month's Standards Personality

VICTOR J. MOYES, curator for the patent department museum and technical coordinator for the sales service division, Eastman Kodak Company, is one of the pioneers in work on photographic standards. Now chairman of Sectional Committee PH1, Photographic Films, Plates, and Papers, Mr Moyes has been active in standards work since 1943, only four years after the American Standards Association announced organization of the original Sectional Committee Z38 on still photography. This committee was the forerunner of five of the six PH sectional committees which now handle photographic standardization. Mr Moyes was a member of several of the Z38 subcommittees on dimensions of sensitized materials and on processing equipment. Since reorganization of the committee, he has served as chairman of the subcommittee on micro-transparencies of Sectional Committee PH5, as well as a member of the PH5 sectional committee on photographic reproduction of documents. He has been chairman of Sectional Committee PH1 since 1956. He also serves on the Administrative Committee on Secretariats for the international committees ISO/TC 36 on Cinematography and ISO/TC 42 on Photography.

In 1925, after receiving a Master of Science degree in chemical engineering from the Massachusetts Institute of Technology, Mr Moyes joined the Eastman Kodak Company. For a year he was in the Photo Chemical Department of the Research Laboratories, under J. I. Crabtree, who served as chairman of Sectional Committee PH4, Photographic Processing, for many years, and who was the "standards personality" in July 1954. Mr Moyes became development engineer for Kodak in October 1926, and in December 1945 transferred to the sales service department. Since 1939 he has spent part of his time in charge of the patent department museum. He was on loan to the George Eastman House to serve as coordinator from 1947 until the photographic museum was completely organized in 1949.

Aside from the faithful service he has given to photography and photographic standards, Mr Moyes' principal interest has always been his family. He has a son, James, who began medical training this fall at Syracuse University. His daughter Margaret ("Peg") is in her second year at Mt Holyoke College. She hopes to make Psychology and German her major fields of study.

Mr Moyes' two favorite pastimes have been outboard-motor racing and theater-group activities. His racing has been done as a member of the Irondequoit Yacht Club, of which he was treasurer for many years. For more than 25 years, he and Mrs Moyes were active in the Rochester Community Players. Backstage activities intrigued him most, although he has been called upon to play a variety of roles. Here Mr and Mrs Moyes enjoyed working with many actors who had been, or would some day be, great names in the theater (Alfred Lunt, for instance, got his start with the group).

In addition to membership in the MIT Club of Rochester, Beta Delta Gamma, a social fraternity at the University of Rochester, and Lalla Rookh Grotto, a Masonic group, Mr Moyes holds the position of assistant district commissioner in the Boy Scouts of America.

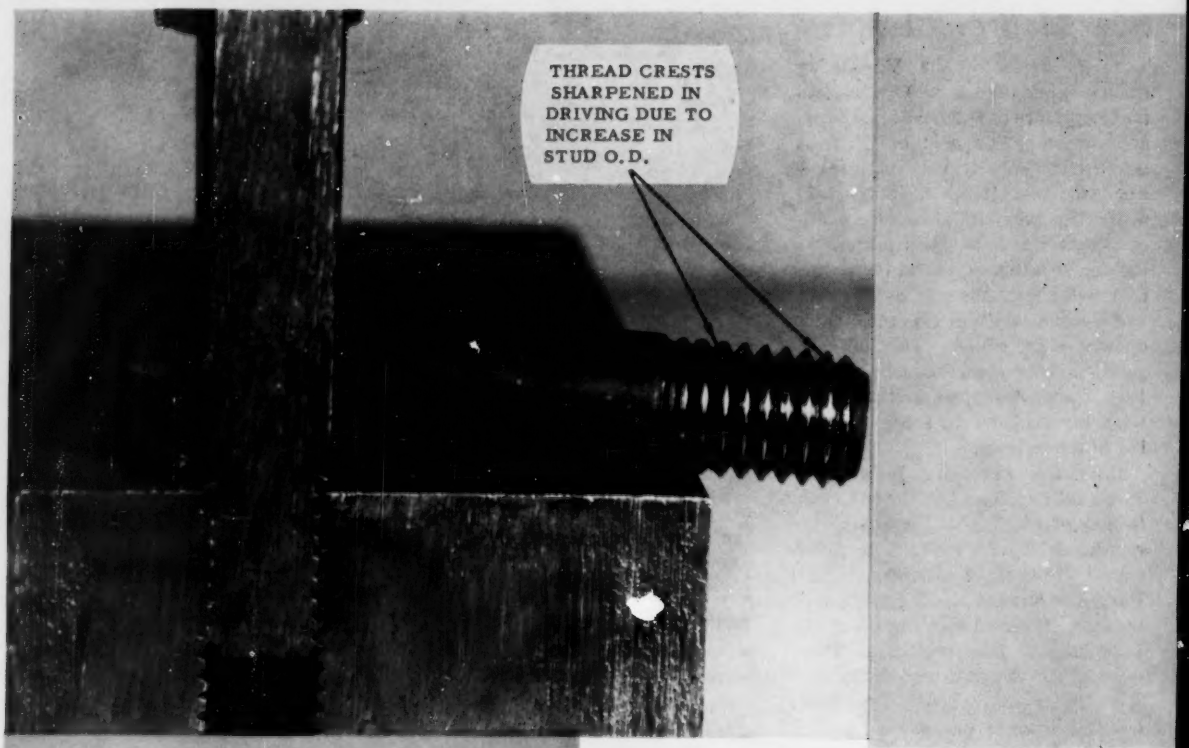


FIGURE 1. Tests showed that plastic flow in driving results in an increase of stud OD.

Chrysler Corporation

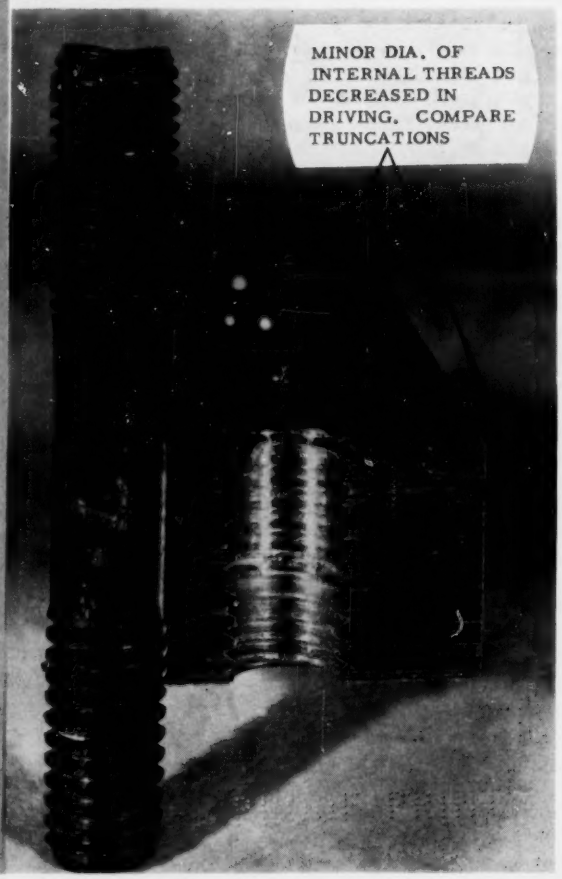


FIGURE 2. Or, the tests showed, plastic flow in driving may result in decrease of the hole ID.

MR WALTERMIRE, chief product engineer of the Lamson & Sessions Company, is chairman of Subcommittee 10 of Sectional Committee B1, Standardization and Unification of Screw Threads. Subcommittee 10, under Mr Waltermire's leadership, developed the new standard on Class 5 interference-fit threads.

CLASS 5 THREAD STANDARD ISSUED FOR TRIAL

Committee Asks for Comments

by W. G. WALTERMIRE

FOR SOME YEARS, interference-fit screw threads, generally applied on tap-end studs, have caused problems for industry. Distinguished by the fact that the external thread is larger than the internal thread, which produces the interference fit, this type of thread has come to be known as the Class 5 thread. Obviously, when the larger external thread and the smaller internal thread fit together, plastic and elastic flow of metal must occur since the two threads are the same size when assembled. How does the metal flow? What moves? What causes the troubles with which these interference-fit stud threads, recognized as being troublesome but indispensable, have always been plagued?

Pilot research over a number of years to find answers to these questions is now reflected in a new "Trial American Standard" for Class 5 Interference-Fit Thread,[1] just published. This is called a "trial standard" because wide industrial experience is needed to perfect, correct, and expand it. It is true that it has been used successfully for some years in several major companies, but it has not before been available for general industry application. And unlike many other American Standards, this "trial standard" is the direct outgrowth of research rather than a consolidation and improvement of existing standards.

The objectives of the interference-fit thread are (1) to provide trouble-free driving, (2) to provide stud breakloose torques high enough that the stud will not move during loading and removal of nuts, (3) to permit economical production of stud and tapped holes and economical assembly practices.

Class 5 thread standards, which appeared in several editions of the Federal Screw Thread Handbook H28 in the 1940's and early 1950's, did not accomplish any one of these objectives satisfactorily. In 1947, Subcommittee 10 was organized by ASA Sectional Committee B1 to study these problems. Originally the committee was chairmanned by the late Harry Marchand of Chrysler Corporation. By 1950, Subcommittee 10 had been forced to the conclusion that something more needed to be done. A subgroup was then established to research the problem. Its members were Messrs Stephen Chayke and Leo Salmi of Ford Motor Company, Charles Wright and R. L. Jackman of Chrysler Corporation, Irvin Fullmer and William Campbell of National Bureau of Standards, and the writer.

The results, driving 5/16 coarse thread studs, low carbon and medium carbon, in cast iron were original and surprising. This, and later research, developed the following findings:

1. Plastic flow in driving results in an increase of stud OD (Figure 1) or decrease of hole ID (Figure 2),[2] or both, depending on the relative stiffness of the mating materials.

2. Since Federal Screw Thread Handbook H28 and other existing standards still require the stud OD as manufactured to be held at or near the stud nominal diameter, here is where the main trouble lay. Since a 1-in. tap, for example, may produce a hole with an OD as low as 1.000 in. and a stud may have a major diameter as high as 1.000 in., no room may be left for metal flow. Using a special machine built by the Ford Motor Company (see cover), we tested and then sectioned the assembly. We found that the instant torques jumped, seizing (galling or welding) *was starting at the major diameter*. Thus these old—and still existing— standards have the trouble built in them. To alleviate the trouble, existing standards freeze the pitch diameter tolerance, stud and hole, to impractically narrow limits. This thereby theoretically reduces the *volume* of metal being moved and, therefore, reduces but fails to eliminate the trouble of seizing and galling.

3. The hole must be lubricated. The stud may be. A lubricant-sealer is suggested in the new standard. Existing practice was, and largely still is, to lubricate the

[1] Trial American Standard Class 5 Interference-Fit Thread, B1.12, published by The American Society of Mechanical Engineers, and available at $1.50 per copy from the American Standards Association as well as from ASME.

[2] Following common screw thread engineering terminology, OD stands for thread major diameter; ID for thread inner diameter; PD for thread pitch diameter.

stud alone. However, if a person wanted to slide smoothly down a hill on his posterior, where would he apply the lubricant?

4. With a relieved OD stud and a lubricated hole, torques vary directly with PD interference to a point (Figure 3) and then *level off*. This was a very important finding, as it means that the old fear of high interference can and should be forgotten.

5. Lead and angle variations are minor factors not affecting stud performance to any significant degree.

6. Studs should be driven to a stop, not bottomed (driven to the bottom of the tapped hole) or shouldered (drilled and tapped deep—and driven to the runout of the stud thread). Both these conditions produce erratic standout and set up radial compressive stresses which are bad. Shouldering, in addition, throws up a "lip" which can contribute to gasket failure and leakage. Torques resulting from both practices may be released by the thermal stresses set up during alternate heating and cooling cycles in service operation.

7. SAE Grade 5 material is preferable for studs. They produce about the same driving torques as low carbon studs, but provide a high torsional strength to protect against stud breakage in driving. With these results the writer, at the Lamson & Sessions Company, extended the research using ¼-in., ½-in., and ¾-in. coarse thread studs in hardened alloy steel, meehanite, low carbon steel, hard and soft grades of gray iron casting, brass, and aluminum. From this research, the research at Ford was confirmed and it was also found that :

a. Driving torque varies directly as the length of engagement (Figure 4).

b. The length of engagement becomes increasingly critical as stud size increases (Figure 4).

c. For a given range of pitch diameter interference torque regulation is obtained by:

(1) Using varying depths of thread engagement (stud OD and hole ID) for different material combinations

(2) Using different lengths of thread engagement for ferrous and nonferrous metals

The September 1956 issue of *Machine Design* published by Penton Publishing Company, Penton Building, Cleveland 13, Ohio, includes an article by the writer reporting in more detail on the research conducted. Reprints of this are available from the publisher.

The tests at Lamson & Sessions were witnessed and verified by the Stud Subcommittee of the Industrial Fasteners Institute and the findings were transmitted to Subcommittee 10. This committee then decreed:

1. Hole thread PD tolerances should be Class 3. Without further research, it was felt dangerous to go to the new Class 3B[3] for the present time. Use of a Class 3 hole still represents a considerable gain in hole tolerance over existing Class 5 standards—*and with elimination of existing trouble.*

2. Stud thread PD tolerances should also be Class 3 to preserve a safe range of interference. This provides a large increase in stud tolerances, particularly when single element gaging—applying to both maximum and minimum metal limits—is used, as recommended.

3. It was necessary to establish different classes to provide a standard length of thread engagement and thread

[3] Class 3B tolerances will be included in the new edition of Unified Screw Threads, B1.1, when it is published as American Standard. Class 3 tolerances, which were given in the American Standard Unified and American Screw Threads for Bolts, Nuts, and Other Threaded Parts, B1.1-1949 (now out of print), will be included in the appendixes of the new edition, since they apply to American Standard screw threads rather than to the Unified thread.

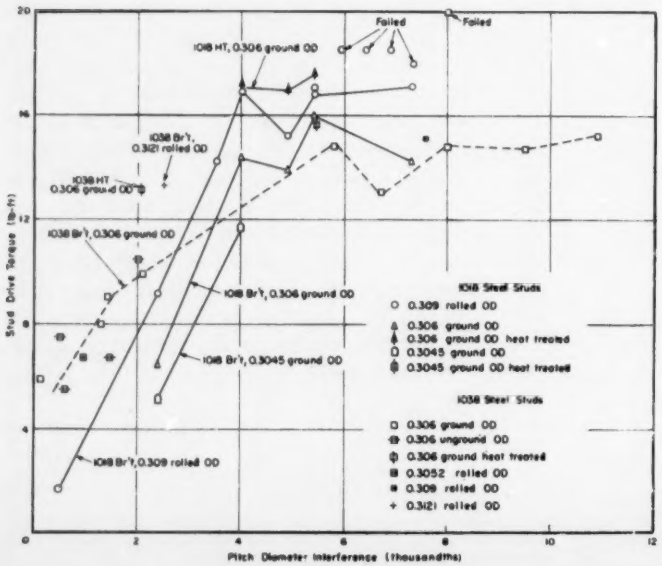


FIGURE 3. Tests showed that with a relieved OD stud and a lubricated hole, torques vary directly with PD interference to a point and then level off.

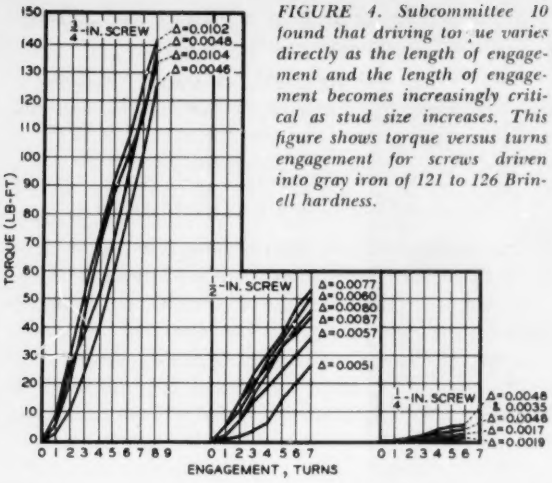


FIGURE 4. Subcommittee 10 found that driving torque varies directly as the length of engagement and the length of engagement becomes increasingly critical as stud size increases. This figure shows torque versus turns engagement for screws driven into gray iron of 121 to 126 Brinell hardness.

truncation and hold within the traditional minimum and maximum torque limits set up in H28 after research years ago.

4. Designations for external threads:
   a. NC (or NF) 5HF applies for studs driven in ferrous material harder than Bhn 160.[4] Studs are heavily truncated. Length of engagement is 1¼ diameters.
   b. NC (or NF) 5CSF applies for more lightly truncated studs driven in copper bearing and soft ferrous materials. Length of engagement is also 1¼ diameters.
   c. NC (or NF) 5ONF applies for lightly truncated studs driven in nonferrous materials other than copper bearing materials. Length of engagement is 2½ diameters.
5. Designations for internal threads:
   a. NC (or NF) 5IF applies to all ferrous materials.
   b. NC (or NF) 5INF applies to all nonferrous materials.

Use of these designations on drawings will clearly and fully call out what is needed and intended. They avoid confusion with any of the old Class 5's.

Gaging recommendations are included in the standard.

These thread standards have been applied successfully for one or more years in plants such as International Harvester, Oliver—Cleveland, and General Motors—Euclid Division—Cleveland, and Cadillac Tank Plant—Cleveland.

The Industrial Fasteners Institute has published stud standards in its *1959 Blue Book* which embrace the new thread standard, and also standardize stud types, body diameter, points, and thread lengths, and provide needed material for ordering the studs and specifying them out on drawings. This book may be obtained from Industrial Fasteners Institute, 1517 Terminal Tower, Cleveland 13, Ohio. ASA Sectional Committee B18 is considering a request to establish a subcommittee to set up an American Standard on studs. Until one is set up, the IFI standard is strongly recommended.

Invariably the question is raised as to the effect the standard will have on patented fasteners such as Lok-Thred, Taplok, Nylok, and others. All these have been developed to do something the old Class 5 threads could not do and often something the new one is not designed to do. Therefore, I think they will stay. Lok-Thred, through using a controlled root tap and closely controlling the root diameter PD and OD of the special stud thread does an excellent job, particularly in soft materials. Obviously, since this principle is generally coupled with case-hardening the stud, preventing movement of the stud material, and since movement of hole material must occur along a 6-degree angle at the minor diameter instead of along the flanks. Lok-Thred has limited application in very hard materials which cannot cold-flow readily.

As opposed to this, the new Class 5 thread solved a problem at Cadillac Tank Plant in armor plate and, of course, also lends itself to use in soft materials.

Taplok in soft material forms its own threads and this represents a saving to users where strength and softness of material permits its application.

Nylok does not depend on metal-to-metal interference and provides an excellent seal as well as a lock. Its limitation is that it is very difficult and expensive to cross drill a hole in a threaded stud or screw of very high hardness material in order to insert the nylon plug.

New products are finding applications each year in competition with Class 5 threads. For example, a modification of the new high-strength bearing bolt, called a WaPaM Bolt (wood and plastic and metal) made by Lamson & Sessions is being applied to provide, in effect, a stud but eliminates the need for tapping the hole. By using a sealing compound and a washer under the head, it, too, can seal. No doubt this parade of special products will continue, but it is the writer's belief that metal-to-metal interference of threads, the principle of the new Class 5 threads, will be with us for a long time and will still provide a standard fastening most acceptable to industry. The job remains to perfect the standard, apply it to thread series other than coarse thread, and extend the size range below ¼ and over 1½ in.

Publication of the "Trial American Standard" should result in nationwide trial use from which will probably develop considerable change. In the spirit of research, therefore, every user of the new "trial standard" is asked to report his results GOOD and BAD to The American Society of Mechanical Engineers.[5] Bearing in mind that a few companies have spent many thousands of hours and tens of thousands of dollars to do the job so far, for the good of all industry, the writer does not hesitate to ask this positive cooperation.

[4] Interpretation of designations and abbreviations: NC, national coarse; NF, national fine; 5HF, Class 5 hard ferrous; Bhn, Brinnell hardness number; 5CSF, Class 5, copper alloy and soft ferrous; 5ONF, Class 5, nonferrous materials other than copper alloys, any hardness; IF, inside, ferrous; INF, inside, nonferrous.

[5] The American Society of Mechanical Engineers, 29 West 39 Street, New York 18, N. Y.

Trucking company supervisor watches as trip cards and freight bill receipts are microfilmed.

WHAT TO LOOK FOR IN A MICROFILM READER

by ERNEST P. TAUBES

MR TAUBES is with Photo Devices, Inc, of Rochester, N. Y. He is chairman of Subcommittee PH5-1, Micro-Transparencies, and is a member of Sectional Committee PH5, Photographic Reproduction of Documents.

THE FIRST EFFORTS TO STANDARDIZE various phases of microfilming and microfilm machines were made by a committee under the procedures of the American Standards Association during the early 1940's. As a result of that work, an American Standard for microfilm readers for 16-mm and 35-mm film on reels was completed and published in 1946 under the identifying number Z38.7.9-1946.[1]

In the 13 years since then, microfilming has grown tremendously; particularly, its application has broadened. The new applications have resulted largely from the fact that microfilm has been taken out of the roll in which it had been confined these many years and has been placed as an individual image or a connected strip in an aperture card or jacket card.

This "unitizing" of microfilm has made it possible to find a single document in a matter of seconds by means of automatic sorting machines instead of having to locate it by a visual search among thousands of images in a roll of microfilm.

Today, microfilm is used in commerce, industry, and government as an everyday tool and is an essential part of the entire miniaturization project, one of the most important projects of both government and industry.

A microfilm reader is a machine which makes it possible to bring a greatly reduced image of an original document back to readable size so that it can be referred to with ease and at once.

Therefore, it is one of the most essential tools—if not the most essential—in the use of microfilm.

For this reason, Subcommittee PH5-1, which is concerned with the standardization of microfilm trans-

[1]A new edition of American Standard Specifications for Microfilm Readers for 16-mm and 35-mm Film on Reels, PH5.1-1959, is now available from ASA at 35 cents per copy.

parencies, examined the original standard, Z38.7.9-1946, as one of its first projects when the new subcommittee was organized in 1953.

American Standard PH5.1-1959 is a simple two-page document. It is amazing that practically five years were required to rewrite the original standard and condense it into the present document. The standard now includes almost everything that is needed to guide the public in selecting a reader which will accomplish one single purpose, to make the microfilm readable for reference.

The standard alerts the person selecting a microfilm reader to the fact that certain questions must be considered to assure a satisfactory reader. Among these are the size of the film the reader will accommodate, the width of the aperture and the image width, legibility of the image, the necessity of restricting stray light, the use of standard reels as described in the American Standard for Reels for Processed Microfilm, and provisions for insertion and transport of film strips of a specified size. In addition, the readers should provide for image orientation, should prevent abrasion of the image area, and provide for holding the film image in focus. The reader user is referred to American Standards that provide tests for printing and projection equipment and that provide for related microfilm equipment.

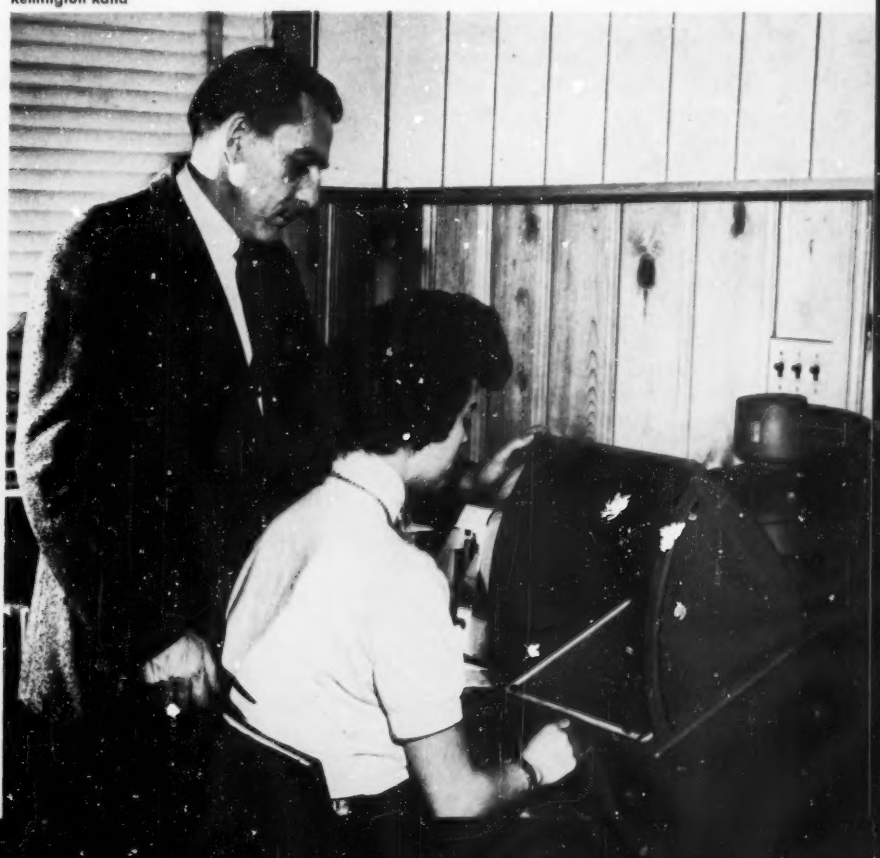
As the introduction to the standard outlines, one important aspect of a microfilm reader had to be left open for future consideration. This is the illumination of the screen, or screen brightness. At present, no proper and satisfactory method has been devised to measure the screen brightness. Any standards specifying the minimum screen brightness would be meaningless unless an accurate method of measuring screen brightness could be specified also.

Various specifications originally included in the 1946 standard have been eliminated in the new edition due to the fact that present-day microfilm is much more diversified than the type of microfilm used 13 years ago. At the same time, certain film characteristics, such as sprocket holes, have been eliminated in today's microfilm so that reference to sprockets is not necessary. The deletion of minimum magnification ratio which had been included in the original standard has its justification in the fact that readers are manufactured with either a fixed magnification or a variable magnification with minimum and maximum limits. Therefore, the person selecting a specific reader for a specific film reduction can determine by the manufacturer's indicated magnification ratio whether such a reader will magnify the image to readable size.

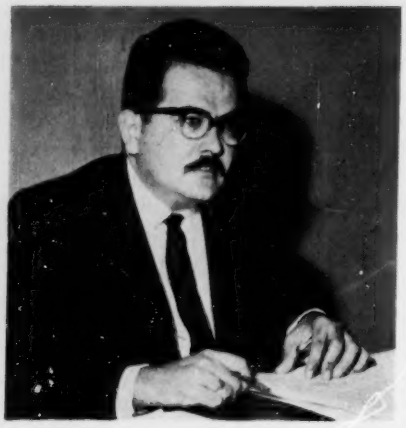
The subcommittee believes that the standard now specifies the important considerations for a satisfactory microfilm reader. However, in writing the standard, the subcommittee found that its major task was to reduce each sentence to the minimum clear and unmistakable wording.

A parallel effort to standardize readers on the international level is being carried on by Subcommittee 1 of the International Organization for Standardization's Technical Committee 46. The close cooperation of the American Standards Association in the work of this ISO committee makes it possible to utilize a considerable amount of the work completed in the PH5 subcommittee in drafting the international recommendations.

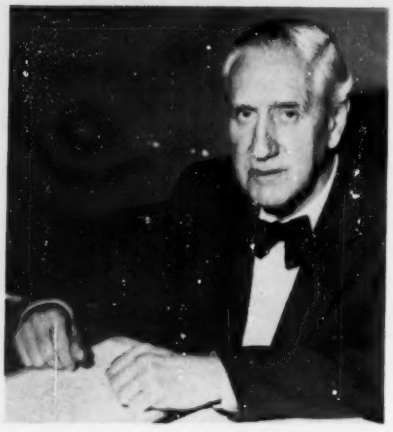
Remington Rand



Here, microfilm reader enlarges microfilmed trip cards and freight bills for easy reference when records are needed.



LEFT: Dr Manuel Delgado Rovati, President; Dr Jose Enrique Porras Omana, Vice-President. BELOW: Dr Carlos Pi Sunyer, Secretary.



VENEZUELA ORGANIZES FOR STANDARDS

The Venezuelan Commission for Industrial Standards (COVENIN) has just been accepted as a member of the International Organization for Standardization. The following description of the recently organized Commission is translated from material furnished by Manuel Delgado Rovati, COVENIN's president.

INDUSTRIAL AND ECONOMIC CIRCLES in Venezuela have long felt the need for a standardization program. Not until a decree was issued by the Government (December 30, 1958) was the work started to any great extent, however. Now it is going forward with great vigor in order to compensate for the delay in its initiation.

The Venezuelan Commission for Industrial Standards (Comisión Venezolana de Normas Industriales) created by the Government decree, is an autonomous organization, even though it is attached to the Ministry of Public Works. The Venezuelan Director of Industries is president of the Commission, and his assistant is the Commission's vice-president. The Commission consists of seven principal members, with their respective alternates, and a secretary. Four of the members represent the Treasury Department, the Department of Public Works, the Department of Agriculture and Animal Farming, and the Department of Mining and Hydrocarbons. The other three represent private technical or economic corporations—the College of Engineers of Venezuela, the Federation of Chambers of Industry, and the Pro-Venezuelan Association. This latter organization represents the interests of the consumers.

Standards are developed in the way that is most usual among national standards organizations. Proposals for standards are assigned to technical committees consisting of persons who are competent in the respective subjects. The drafts prepared by the technical committees are submitted to the public for comments, to find out what objections may be raised. Any objections can then be considered and, if they are justified, changes made before drawing up the final text of the standards.

The standards approved by COVENIN have the character of an official recommendation. Only when it is advisable for reasons of public health and for prevention of unfair commercial practices may the Commission request the Ministry of Public Works to make standards mandatory.

Apart from the approved standards, there are provisional standards which have been prepared by the technical committees but have not yet been finally approved. The technical committees are also in a position to prepare emergency standards in case it is advisable to do so.

In this first stage of its activities, the COVENIN is especially occupied with the establishment of standards for agricultural raw materials as used by the country's industries. Provisional standards have been established for the classification of sisal fiber, and standards have been approved for the classification of cotton, tobacco, and sesame seeds. Standard methods of analysis for

these products are now being studied by the respective technical committees. Several standards for the quality of edible oils and for the quality of vegetable fat are also being prepared.

At the request of the Venezuelan Building Department, preparation of a set of standards for construction materials is planned. These standards will be based on a study carried out by the Department of Public Works.

The Association for Electrical and Mechanical Engineers has also requested the establishment of standards for electrical, mechanical, and industrial installations.

With the assistance of the Venezuelan Institute of Petroleum Chemistry, several standards are being studied for carboys used for the transport of chlorine. These standards were requested by the Institute for use in connection with the export of chlorine.

COVENIN is in close touch with enterprises which are able to cooperate in the work and to further its success, especially the Venezuelan Institute for Technological Research. COVENIN has no laboratory of its own but it is authorized to use those public or private laboratories which are most adequate in the field of the standards concerned. Generally speaking, COVENIN is not isolated in its activities but acts in close cooperation with all industrial corporations and organizations interested in work on standardization.

Standards for Information Retrieval Studied

FIRST STEPS HAVE BEEN TAKEN to find a way to develop a "common language" which would make it possible to code and index the world's growing store of scientific knowledge. The purpose is to make it possible to use machines to retrieve the indexed material quickly and easily and to translate the literature available in many languages. The problem was discussed by some of the world's leading figures in the educational, library, and documentation fields, and by representatives of the machine manufacturers, at the International Conference for Standards on a Common Language for Machine Searching and Translation held at Cleveland, Ohio, September 6-12. The conference was sponsored by Western Reserve University and the Rand Development Corporation.

Representatives from 10 countries participated in the conference, including Brazil, France, Germany (West), India, Italy, Japan, Netherlands, United Kingdom, USSR, and USA. Optimism that a solution can be found characterized their discussions.

Five study committees, which were set up to coordinate the ideas presented and to codify the recommendations, reported to an ad hoc committee of 15 members, one from each of the nations represented at the conference, and several members-at-large. The ad hoc committee will report the results of the conference, and set the stage for future work. It was the intent of the meeting that this committee should continue in existence and issue regular progress reports. Its recommendations are to be presented at another international conference to be held no sooner than one year from now, nor later than two years. The hope was expressed that in the meantime certain of the resolutions could be transmitted officially to the International Organization for Standardization for its suggestions and possible submittal to an ISO committee for study.

Among some of the leading figures of the world who took part in the conference were Dr S. R. Ranganathan, Vikram University, Bangalore, India (who is responsible for India's outstanding network of libraries); Dr Kinzo Tanabe, chief, the Japan Information Center of Science and Technology, Tokyo; Dr O. Nacke, Fachausschuss fuer Medizin, Bielefeld, Germany; Dr A. D. Booth, director, Numerical Analysis Laboratory, Birkbeck College, London; Dr A. F. Parker-Rhodes, Cambridge Language Research Unit, Cambridge, England; Dr R. A. Fairthorne, Royal Aircraft Establishment, England; Dr Brian Vickery, Imperial Chemical Industries, Hertfordshire, England; Dr Cordonnier, International Commission OECE, Paris; Dr E. de Grolier, Center for French Exchange and Documentation, Milan, Italy; I. S. Muhkin, Institute of Precision Mechanics and Applied Techniques, USSR; J. Dekker, Netherlands Patent Office, The Hague, Netherlands; and Dr Bolting, Rio de Janeiro, Brazil.

William H. Offenhauser, Jr, long active in standardization work and a member of the American Standards Association's Committee Z57 on Standardization in Sound Recording, urged the use of existing procedural machinery for development of the standards that will be needed. The International Organization for Standardization, with a membership of national standards bodies of 44 countries, and the American Standards Association, the national standards association of the USA, offer the integrity and impartiality needed for successful realization of the goals of the conference, he said.

Robert E. Kingery, New York Public Library, and chairman of ASA Sectional Committee Z39 on Standardization in the Field of Library Work and Documentation, described the work of the committee and its methods of operation under the procedures of the American Standards Association.

Vice Admiral G. F. Hussey, Jr, managing director of the American Standards Association, and vice-president of the International Organization for Standardization, spoke at the dinner meeting of the conference. Admiral Hussey attended the conference as an observer on behalf of the ISO. "Without standards, a tremendous amount of energy could be dissipated without fruitful results," Admiral Hussey said. "But with standards, a key can be provided which will unlock the archives for all the world."

COMPANIES REPLY TO STANDARDS SURVEY

DO COMPANY STANDARDS PROGRAMS PAY? Men who work with standards know they do, but evidence to support their knowledge has always been uncomfortably meager.

Now, results of a survey conducted this year have been released by the American Standards Association. In its role as the main source of information on national and international standards in the United States, ASA asked its 2000 company members and about 800 nonmembers for information about their experience with standards. ASA wanted to know how many companies have formal standards programs, how their standards work is organized, how standardization is financed, how standards are used, whether the company cooperates in standards activities outside the company, and whether there are records of savings through standardization.

Questionnaires were sent to about 2,800 companies, and 238 were returned. Of these, 89 reported a formal, organized program. Thirty-four of the 89 were able to report actual dollar savings. Others, however, stated or implied savings in a general way, and several indicated that company policy prevented them from revealing dollar figures. A number indicated that intangible savings probably exceeded the tangible figures available.

Of the 238 who replied, 181 were members of the American Standards Association.

The companies answering the survey ranged in size from a two-man part-time technical writing firm to corporations with several billion dollars worth of sales. By industry, the companies indicating standards activity fell into the following industry classifications, listed in order of number of companies included: Electrical manufacturing, general machinery, electrical utility, machine tools, chemical, gas utility, steel and iron, electronics and communications, petroleum, valves and fittings, fasteners, aircraft, building materials, bearings, engineering and construction, railroads, instruments and controls, copper and brass, office equipment, photography.

The result indicates that those companies having formal standards programs, with budgetary control of standards work, are better able to show clearly the monetary benefit of standardization than those whose standards work is a part of other functions and under the control of a number of different departments. Although a total of 209 companies indicated either specifically or in a general way that they engage in some form of standards activity, the survey seemed to indicate that the majority of companies are missing the benefits of a standards program and of budgetary control of standards.

The most conclusive finding, the report indicates, is that American industry as a whole probably doesn't know the answers to questions about savings due to standards. Compared with information previously available to ASA, the report indicates, however, that more and more companies are beginning to realize the cost-cutting potential of a standards program.

Several of the companies reporting indicated that, as their new standards programs get under way, and as results begin to be felt, they will find ways of pinning down the dollars-and-cents results.

One of the significant findings, ASA believes, is that 30 of the 34 companies reporting dollar savings also report extensive use of standards and standards manuals. This seems to indicate a close link between organized standards work and recordable cost savings.

Savings reported by the 34 companies that were able to quote specific figures were as high as $50 saved per $1 spent on standards work.

In terms of sales, savings ranged from 0.3 percent to 5 percent of sales, with an average close to 1 percent. In the introduction, the report calls attention to the fact that on the basis of a gross national product of more than $450 billion, there is reasonable evidence to assume that the entire American economy could save at least $4 billion a year through standardization.

Representative returns show the following:

- A contractor specializing in petroleum and chemical works estimates savings of a million dollars a year through the use of standards, or $8 in savings per $1 spent on standards activities. Areas in which substantial savings were reported by the company were engineering and drafting time, purchasing, identification of materials on the job, and erection of correct parts in proper places.
- A manufacturer in the missile field saves 5 percent of total sales of $216,000,000.
- A chemicals company with annual sales of $250 million reported on its new standards program. With a total budget of $35,000, the program resulted in the establishment of 28 standards in the first ten months, and 62 standards manuals were issued. Company personnel are active on standards committees of the Manufacturing Chemists' Association, the American Society for Testing Materials, and the Society of the Plastics Industry.
- A machinery manufacturer with 10 plants and annual sales of $155 million reported tangible savings of $250,000 a year through standards, and estimated that intangible savings per dollar spent on standardization run as high as $35 or $50. Its yearly standards budget is $70,000.
- Another heavy machinery maker, E. W. Bliss of Canton, Ohio, reported annual savings of about $50,000 on a standards budget of $14,000.
- The Kentucky Utilities Company reported estimated savings of $50,000 to $75,000 annually as the result of a recently established standards program budgeted at $15,000 a year. The company expects the budget to drop when the standards program is fully developed.

• The St. Regis Paper Company of Providence, R. I., reported annual savings of $107,000, and stock inventory reduction of $1,200,000 in three years, as a result of a recently inaugurated standards program with an annual budget of $30,000.

• Savings experienced by electric and electronic companies through the use of standards range up to $50 per dollar spent on standards activities. This fifty-fold savings was reported by Davenport Manufacturing Company of Chicago, which believes that a small company is more dependent on a solid foundation of standards than a large, well known company that can trade on its reputation.

• Western Electric Company also reports reliance on organized standards practices on a wide scale. Uniform methods are established through handbooks and manuals, and the major divisions incorporate standards procedures into their functions. In addition, many Western Electric people serve on standards committees of trade and professional associations, including the American Standards Association.

An interesting development is the indication that companies which report large savings due to their standards programs are also those that are making use of American Standards and are cooperating in national and international standardization. As the introduction to the survey points out: "ASA activity continues to increase as more and more companies, through their trade associations, through technical societies, and through other national groups, request the initiation of new American Standards projects of national scope. As companies learn of the economic benefits of standardization, they learn that these benefits can be extended in many cases across company and industry lines, to the mutual benefit of all concerned."

The survey report is entitled "Company Standardization—Organization, Costs, Savings. An analysis by the American Standards Association." It contains an introduction analyzing the results of the survey in general; an analysis of the companies surveyed; and an analysis of the replies to each of the questions asked (How Standards Work Is Organized; How Standardization is Financed; Use of Standards; Standards Activities Outside the Company; Savings Through Standardization).

The final section is a selection of comments, quoted from the replies of the companies themselves.

One copy of the survey report is being furnished without charge to the official contact of each ASA member, and to the companies that cooperated in the survey. Additional copies can be obtained at 50 cents each by members. Nonmembers may purchase the report at $1.00 a copy.

STANDARDIZATION—MUTUAL WORK

Translation from Circulaire d'Information, published by the Belgian national standards association, IBN

THE ART OF LIVING IN HARMONY with the world which surrounds us is so difficult that the number of those who practice it is relatively very small. It is an art which can be learned effectively only in the light of everyday experience.

Unfortunately, the organization of modern society does not take this ideal sufficiently into account and an individual continually finds himself fighting contrary currents. The individualistic character of business enterprise does not always favor the formation of real working communities. However, the working place is of all others the best in which to teach individuals to live in harmony. In fact, it is in such surroundings, where many persons unite their efforts for the achievement of a mutual aim, that the spirit of coperation has the most chance to develop.

The work of standardization within organizations can contribute greatly to cooperation and mutual understanding by multiplying the opportunities for individuals in the company to meet together.

Standardization introduces order.

A standard is the result of methodical work. It may comprise definitions, terminology, classification according to usage or according to qualities, dimensions, test methods, or control methods. From an infinity of possible solutions it retains those which make it possible to satisfy "normal" needs with a limited number of qualities or dimensions judiciously chosen.

Order is created on the basis of what already exists and after examining all possibilities and all interests involved.

The result may be consulted by everybody. Public authorities as well as private enterprises which desire to introduce some order can use standards in the fields which are of interest to them. The good effects resulting therefrom induce those working in neighboring fields to promote new standardization. Thus, other fields are gradually worked on and order is established in more and broader fields. This order is of a durable character. Experience has shown that many standards remain unchanged for many years.

Standardization not only introduces order, it creates also a spirit of solidarity.

Standardization work carried out with the aim of finding the best solution for the future and for the benefit of all leads directly to this result.

Standardization committees are constituted on the basis of many-sided representation. They are made up of delegates representing manufacturers and users, and also experts in scientific fields, in public teaching, and administration.

All interests are therefore represented in these committees, and often very divergent interests must first be reconciled in order to make publication of a Belgian standard possible.

Experience shows that standardizing committees, which actually constitute small working communities, are an excellent school for social solidarity where the most constructive spirit and the unanimous will to work usefully in the interest of all are the ruling principles.

NEHRU BACKS INDIAN STANDARDS

THE FACT THAT STANDARDS are vital to India in its struggle for its share of the world's trade was recognized by India's Prime Minister Jawaharlal Nehru in his speech opening the Fourth National Standards Convention in New Delhi late in 1958. No nation can really export successfully unless she has standards in which people of other nations have faith, Prime Minister Nehru said. "Without standardization we cannot progress in industry. If we wish to create confidence about an industry and the sale of our goods, then they should be of high standard," he declared. "We talk today about increasing our production; it has become a vital matter. . . . It is an essential element of planning to have standards."

This was Prime Minister Nehru's first visit to the Indian Standards Institution's new building. He congratulated those connected with its planning and construction, and mentioned particularly the mosaic frieze designed by a young Indian artist.

A feature of the meeting was presentation of the first K. L. Moudgill Prize to Dr Lal Verman, director of the Indian Standards Institution. The prize was established last year to commemorate the valuable services rendered to the ISI by Rajyasevapravina Dr Kishori Lal Moudgill. Prime Minister Nehru garlanded Dr Moudgill and congratulated him on the prize named in his honor. "Dr Moudgill set the pace for cooperative effort, which has been the cornerstone for building the entire superstructure of ISI work," said Shri E. A. Nadirshah, vice-president of ISI. "He represented ISI in two series of international meetings at both technical and administrative levels, and on each occasion earned admiration not only for himself but also for the Institution which he represented."

Dr Verman, to whom the Moudgill Prize was presented, was cited for his "tactful, yet resolute handling of the affairs of the Indian Standards Institution." He has brought national standardization activity in India "from almost nothingness to the present stage in which the Commonwealth Standards Organizations have described ISI as holding a leading position among the standards organizations of the world," the citation declared. Among the standards for which Dr Verman was given particular credit were those on seedlac, shellac, and bleached lac which have been accepted as a basis for International Organization for Standardization Recommendations. He was also cited for his part in the decision which India has taken recently to adopt the metric system, for his work as vice-president of ISO, and for his contributions to the International Electrotechnical Commission.

In accepting the prize, which carried an honorarium of 500 rupees, Dr Verman announced that it was his intention to distribute the prize money to his staff "who have worked so assiduously and conscientiously during the past 11 years, and without whose help and unstinted cooperation I would not have been able to accomplish whatever I have done."

Some 800 delegates attended the convention, among them representatives of women's organizations who participated for the first time. They urged greater efforts to popularize the ISI Certification Marking[1] scheme, and offered the cooperation of the women's organizations for this purpose as well as in any work undertaken by ISI to provide more information to the consumer.

Growing urgency for safety and health precautions in view of the rapid industrialization of the country was noted particularly. It was pointed out that the severe climatic conditions of this tropical country contribute to deterioration and breakdown of equipment, thus increasing the sources of danger. Also, standards to protect the health and safety of the public should be considered as well as for use in industry, it was pointed out.

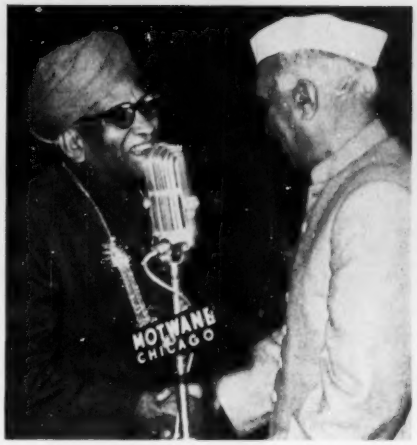
Statistical quality control was emphasized as essential in the ISI Certification Marking scheme for improving the quality of goods produced in India. A session of the conference was devoted to the methods of sampling used.

A session on steel economy called attention to an

[1] About 100 licenses have been issued by ISI for use of the Certification Mark under the Certification Marks Act of 1952. The licenses cover some 37 types of products.

OPPOSITE PAGE: At India's Fourth National Standards Convention (l to r): Prime Minister Nehru; Lala Bharat Ram, chairman, Reception Committee; L. C. Verman, director, Indian Standards Institution; and members of the convention Reception Committee.

Dr K. L. Moudgill is congratulated by the Prime Minister after having been garlanded by him in recognition of his services to standards. RIGHT: Dr Lal Verman thanks Prime Minister Nehru who presented to him the first award of the K. L. Moudgill Prize.



ISI project for saving steel which has resulted in several Indian Standards.

ISI has started work on standardization for alloys and special steels as a means of promoting the development of this industry in India, according to papers presented as a session on steel.

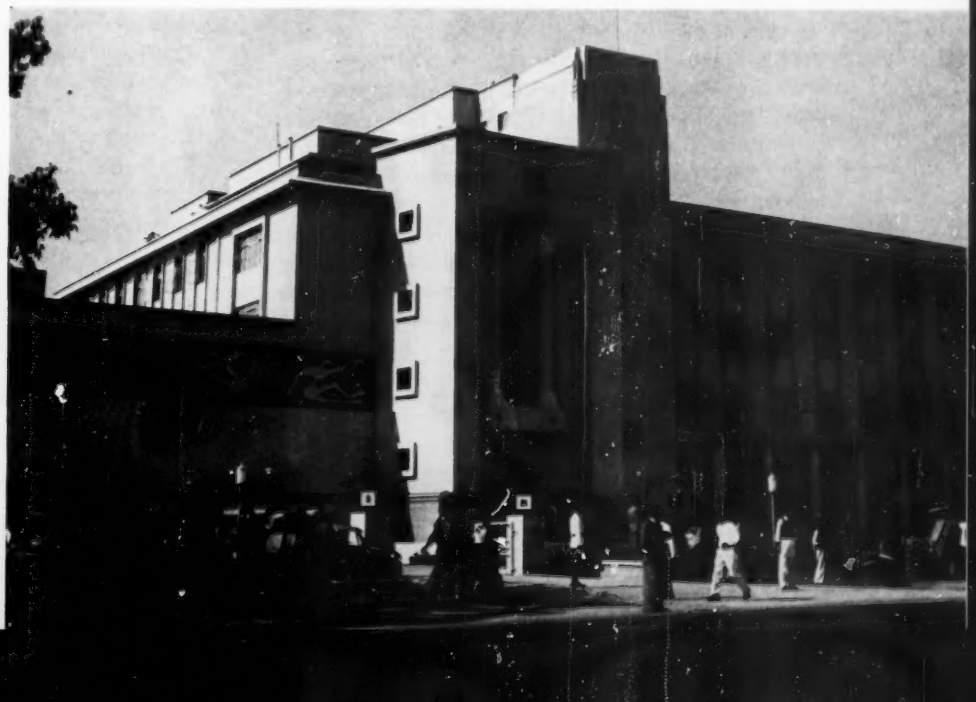
As a means of promoting welding as a dependable technique, schools for training welders, using Indian Standard specifications and codes of practice, were urged.

A session on modular planning, design, and construction called attention to the work of the Building Research Institute, which has attempted to introduce a precast manufactured house planned according to the modular system. It was urged that similar experiments be made in other parts of the country. ISI has used the modular system in standards for common building brick, building stone, floor tiles, doors, windows, and other components.

ISI is taking an important part in work on weights and measures, and in the adoption of the metric system in India. Standardization problems involved in converting to a new system of weights and measures are intricate, involving integrated coordination and careful phasing of the change-over in the many interlocking industries, it was pointed out. One of the convention sessions discussed the problems that must be faced in putting the system into effect by the scheduled date, December 1966.

Company standards organization was discussed in 13 papers at a special session on standardization and productivity. Shri M. M. Shah, Union Minister for Industry, presided.

Commenting on the work of the Indian Standards Institution, the *Indian Express* said: "If the formulation of standards involved only the acceptance of the best available criteria of quality, the task of the ISI would be simple. But thereby it would have sacrificed its utility, since it would often be asking for the impracticable, at least under Indian conditions. Wisely avoiding this course, the ISI has tried to reconcile a number of difficult objectives and has attempted to evolve standards which are consistent with available local resources, appropriate to the various levels of techniques in use and the types of requirements, which may not always demand the highest known standards."



The Indian Standards Institution Building in New Delhi, for which the Prime Minister had laid the foundation stone in 1954, is decorated with a mosaic frieze by a young Indian artist.

DEFINITIONS IN STANDARDIZATION

By J. CHINGAS *and* R. GLIE

JOSEPH CHINGAS is department manager, production engineering, The W. L. Maxson Corporation, New York.
ROWEN GLIE, standards section supervisor, The W. L. Maxson Corporation, is chairman of the New York Section, Standards Engineers Society.

THE LATE SIR ARTHUR STANLEY EDDINGTON once started his lecture by stating the following: "I believe that there are 15,747,724,136,275,002,577,-605,653,961,181,555,468,644,717,914,527,116,709,-366,231,425,076,185,631,031,296 protons in the Universe. . . ."

Were there as many standards engineers as there are protons, we probably would have 136 x 2^{256} definitions for the terms "standards" and "specifications." It is time to come to an agreement on these subjects and we appreciate the fact that THE MAGAZINE OF STANDARDS has given the standards engineers an opportunity to voice their opinions. Whatever our differences may be, we all agree with Mr Acheson[1] on one point — Semantics (Science of Meaning). This is very important, particularly in standards and specifications. After all, standards and specifications are communications. And, if you do not understand the meaning of a communication, all you have is noise or unintelligible hieroglyphics. This is why we cannot agree with Dr Gaillard's citation[2] from Anthony Hope: "Unless one is a genius it is best to aim at being intelligible." Our opinion is that even geniuses are not exempt from S.D. (semantical duty); otherwise, how can one tell a genius from a moron, if both are unintelligible?

The trouble with semantics is that it is as difficult as it is necessary, and for all practical purposes the nonprofessional semanticists are reduced to the use of the "Do-it-yourself Semantical Kit" — the standard dictionary.

When this method is applied to electronic industry definitions of standards the result is rather startling:

The electronics industry's definition of a standard is: "Standard — an organic, systematic coordination of principles embodied in written documents that are adopted voluntarily by an association or other organized body of people."

What does "organic" mean?

1. Pertaining to the internal organs of the body.
2. *Having systematic co-ordination.*
3. Inherent, constitutional.

What is "principle"?

1. Source or origin.
2. Original faculty.
3. A fundamental truth.
4. *A settled rule of action, governing law of conduct.*
5. Essential or characteristic constituent.
6. The natural or mechanical laws.
7. Divine principle.

Comments:

1. It is obvious that the word "organic" is redundant with "systematic coordination."

2. "Principle" for us has meanings 3 or 7, above. It is something you live by or die for. Quite obviously, nobody would die for an electronic standard. Therefore, 3 and 7 do not apply, but the meaning of 4 seems applicable, except for "a settled rule of action," because this could be a habit and "habit," the dictionary implies, is not always a good habit. Nobody would like to coordinate bad habits.

[1] "Let's Speak English! Standards or Specifications?" by Marcus A. Acheson, MAGAZINE OF STANDARDS, June 1959, page 176.

[2] "Specifications and Standards—A Proposal of Some Basic Definitions" by John Gaillard, MAGAZINE OF STANDARDS, August 1959, page 238.

The meaning for us remains, therefore, "the governing law of conduct." Now we may ask if "the governing law of conduct" is not a definition for a standard by itself; if so, the electronic industries coordinate standards that are adopted voluntarily. Confusing?

We realize, of course, that we are not quite unbiased ourselves. Any English word may have many meanings; so that, no matter what words are used in a definition, they can be reduced to nonsense by playing the dictionary game. But why use words which make you want to look into the dictionary?

When you come from the electronics industry's definition of "standards" to Dr Gaillard's definitions, it is like a cool breeze on a hot day.

> "A specification is a statement of requirements to be met if a specific objective is to be attained."
> "A standard is a specification for recurrent use."

These definitions are crystal clear. Even if you don't agree with them, you are certain what Dr Gaillard wanted to say. With Dr Gaillard's definitions, the dictionary is not necessary.

Dr Gaillard's definition defines not only what a specification is ("statement of requirements"), but also when and why we write it ("if a given objective is to be attained").

This is too much for a basic definition. A basic definition must show only the bare essentials, in this case the essentials that make a specification a specification. Basically, a specification is much too primitive to have an objective; all it has is a subject. A specification is just a description, a memory of something. It is the "descriptivity" which makes a specification a specification.

The origin of a specification is a category—a primary fundamental concept.

A category permits us to orient ourselves in the outside world by distinguishing one item from another or by grouping similar items together, or by doing both.

For instance, a "house" is a category which includes everything that is a "structure for habitation," be it an igloo, Cape Cod cottage, tepee, castle on the Rhine, or a snail's shell.

A specification is an evolution of a category.

A specification of a particular house will be a description of the house in question with enough details to differentiate it from any other house, even one that is very similar, but not identical.

The difference between category and specification is that category is the result of a rather subconscious effort, while a specification is a fully conscious effort to find as many particulars of a subject as are necessary to describe it.

The dictionary definition of a specification—"designation of particulars"—is good but not complete.

The following definition seems better:

> "A specification is an enumeration of particulars of a selected subject."

Obviously, the subject of a specification could be anything: materials, products, equipment, practical items, impractical items, possible, impossible, real or imaginary, existing or nonexisting, or just desirable.

In technology we use a specification, at all times, when talking or dreaming about anything technological. The language of a specification—quantity and quality of characteristics (particulars) — is the only language most engineers know.

Specifications fulfill two (2) functions: They are our technological memory (stock of information) and our means of communication.

When we turn from specifications to standards it becomes obvious that it is rather difficult to formulate a basic definition of a standard. To define a standard as " a specification for recurrent use," as Dr Gaillard does, seems completely inadequate. The recurrent use is only one of the characteristics of standards.

A standard is an evolution of a specification. As the specification, it is an enumeration of particulars on a selected subject. But as a standard, both the subject and the particulars of the subject have been studied, evaluated, selected by competent authoritative specialists, and the draft of particulars approved as suitable and most practical for general use, by general consensus of all people, companies, and institutions interested in the subject.

Because of intensive research, correlation, and the large number of people involved in the creation, approval, and acceptance of a standard, it follows that only items of general use (of interest to many groups) and of recurring character (frequent use) would bring together the representatives from different departments, companies, or nations to work on company, national, or international standards.

In the forthcoming book on standards and other related subjects to be published in 1960 by Engineering Publishers, we say the following:
"The general definition of standards when applied to company standards or national standardization must become more specific, since it must confirm the specific needs of the company or the nation for standardization."

A review of various uses of standards, the understanding of standards and specifications as a means of orientation, and use of the available stores of knowledge to solve recurring problems in the complex world of modern technology will permit us to define different characteristics of a standard, which necessarily must be included in a definition of a company standard, or a national standard:

1. *A standard is a rule*, a process which we follow, or a model which we reproduce as a company's routine process, rule, or model. Being a rule, a standard is a discipline when a standard is mandatory, and a self-discipline when a standard is not mandatory.

2. *A standard covers the recurring problems most often.* It is economical to perform all tasks necessary to establish a standard only when the problem is recurring.

3. An accepted standard is the result of somebody's past experience. Standards are true knowledge on how to do things, and being true knowledge they are authoritative and of practical use. A standard is a given solution not to a theoretical, but to a real problem. *A standard is the solution to a real technological problem that for all practical purposes has been solved.* The standard avoids duplication of effort to find a solution which already exists.

4. Since the solution of any problem is a function of experience up to that particular moment, and of the state of the art at the moment of standardization, the standard by necessity will change when experiences change. In other words, standards are as dynamic as human experiences and knowledge are. *Standards are temporary,* and being temporary they do not hinder progress.

5. Since technical problems may often be solved in different ways, there could be many specifications or standards, or both, for the same problem. The user of standards, therefore, has, as his main task, the selection of the most appropriate of the standards available to him. *A standard is the result of selection.*

6. A standard is always a communication—it is a record of a solution and must always be a written document. It cannot be oral, since oral communication is almost always distorted when the solution to a recurring problem is required over appreciable time intervals. *A standard is a written statement.*

7. Since a communication must be understood by everybody, technical data given in standards should be expressed, whenever possible, in terms of measurement. All salient points which make the object of the standard a standard item must be well defined so that no misunderstanding of these salient points may arise in the mind of the user of the standard. *The foundation of each standard is a specification which was defined to record one experience of a problem which subsequently became recognized as a recurring problem.*

8. *Standards are established only if the problem has elements of universality—general usage.*

9. Since industrial standards cover the company's activities and will be used as general rules for the company's routine operations and are therefore paramount to the company's interests, the selection of standards is management's problem, belongs to management operational planning, and must be subject to direct management control and management approval. *To standardize is to manage routine operations.*

10. A standard has no value unless it is accepted and used. In order to be accepted and used, it must be recognized by consensus of the majority of potential users as the best in the state of the art, an acceptable solution of the problem in question. Therefore the use of the standard is in the interest of the company in particular or industry in general as applicable. *A standard must be accepted by the consensus of its users.*

Keeping in mind the above enumerated characteristics of standards, we can now formulate these definitions:

Specification —
A specification is a concise statement of the requirements for a material, process, method, procedure, or service, including, whenever possible, the exact procedure by which it can be determined that the conditions are met within the tolerances specified in the statement. A specification does not have to cover specifically recurring subjects or objects of wide use, or even existing subjects.

Standard —
A standard is a specification accepted by recognized authority as the most practical and appropriate current solution of a recurring problem.

Company Standardization —
Establishing and implementing the company's policies concerning its routine operations, specifically in the area of the company's recurring problems; selecting the most appropriate solutions to these problems and disseminating them by means of revisable standards and specifications; and maintaining these standards consistent with state of the art values for the company's products or services and with efficient utilization of time, manpower, equipment, and materials.

National Standardization —
Voluntary and cooperative development, under the procedures of the American Standards Association, of current technological solutions of industry-wide recurring problems, by authoritative representatives of professional and trade organizations.

The Standards Department is a company department charged with the duty of defining the parameters of standardization within the company, preparing for management approval a standardization program and policies, and implementing this program within the company's jurisdiction.

A Standards Engineer supervises the activities of the standards department and has the responsibility for promoting, developing, and disseminating company standards.

A differentiation must be made between the company's standards engineer and other company engineers who may assist the standards engineer in completing his task. Not all the people working in the standards department are standards engineers; they could be specialists such as members of the material laboratory, electronics or mechanical components engineers, time study engineers, stress analysts, etc. These people provide the supporting data and references necessary for establishing standards. The standards engineer, on the other hand, is responsible for establishing the program of standardization and assuring that published standards are adequate for company use.

With these definitions of specifications, standards, and standardization, we bring the standards to the level of interest and understanding of both management and engineering. We pass from the domain of philosophy to the concrete technological necessity.

This is the twenty-fifth installment in the current series of rulings as to whether unusual industrial injury cases are to be counted as "work injuries" under the provisions of American Standard Method of Recording and Measuring Work Injury Experience, Z16.1-1954. The numbers in parentheses refer to those paragraphs in the standard to which the cases most closely apply. Decisions on unusual industrial injury cases are issued periodically by the Z16 Committee on Interpretations.

Sectional Committee Z16 is sponsored by the National Safety Council and the Accident Prevention Department of the Association of Casualty and Surety Companies.

INDEX TO CASES 400-600. *An index to Cases* 400-600 *has now been completed. Arranged numerically by the number of the applicable paragraph of American Standard Z16.1-1954, the index includes the number of the case indexed and a key letter indicating what the decision was in each case. Each index reference includes a brief description of the case.*

Reprints of Cases 400-600, *with the Index, are now available from ASA at* $1.50. *Discounts for quantity orders may be obtained on request.*

Are These Cases Work Injuries?

CASE 714 (1.1)

A crushing and grinding repair machinist was kneeling on the floor in the rigger shed near the babbitt fire, measuring a new metal cabinet for stud holes to mount the cabinet on the wall. As he rose from the kneeling position, he felt a snap and pain in his right knee, and 20 minutes later reported to the plant hospital. He was in considerable pain and unable to straighten or stand on his right leg. The knee was x-rayed and examined by the plant doctor. The x-ray was negative, and it was believed that the injury was a probable strain of the knee socket or ligament. The employee received heat treatments, was issued a pair of crutches, and told to report back in three days (after his scheduled two days off).

The employee returned to work as scheduled, but still had to use the crutches. He completed his scheduled work week, during which time there was no improvement in the condition of his knee. Because of lack of improvement, the man was laid off by the plant doctor whose diagnosis was "injury medial meniscus of the right knee."

The company did not believe there was a clear incident of injury, in that kneeling down and rising from the kneeling position were not unusual work requirements, and there was no history of falling, twisting, lifting or straining, or other unusual action.

Decision: This should be considered a work injury and included in the work injury rates. Although there was no specific instance mentioned, the injury to this employee's knee arose out of and in the course of his employment, and therefore should be included in the rates.

CASE 715 (5.2)

An exceptionally tall employee worked as a laborer, doing all types of heavy work about the plant. Four or five years previously, while doing some heavy trucking, he had had some pain in his back which was not, however, associated with any accident or incident. A couple of years later this man had the job of lifting trays of steel parts which were quite heavy. The employee had to bend over, pick them up from the floor, and put them on an assembly bench. Because of his excessive height this work was very hard on the man's back, and he eventually had to have a back brace fitted to him. Some time later the employee was examined by a doctor who diagnosed the difficulty as lumbosacral back strain, and suggested that he be put on light work which did not require any bending or heavy lifting. The man continued to wear his back brace, but about a month later, due to the lack of seniority and slow down in work, he was laid off, and was unable to get another job for quite some time after that.

Because this man's incapacity resulted from repeated operations over a period of time, the question arose as to whether it should be classified under paragraph 4.6.1 as a non-accident injury; or whether the last paragraph under 5.2 applied in that the back condition was revealed while the employee was performing his normal, regular duties and was not caused by an accident or incident.

Decision: This should be considered a back injury, and judged under paragraph 5.2. Although the history of this case was somewhat vague, the committee believed the employee had received a back

injury arising out of and in the course of his employment, and the case should be counted in the rates.

CASE 716 (1.1)

Incomplete facts—no decision rendered.

CASE 717 (5.3)

For a year and a half, a hand trucker had been receiving treatments at intervals for the same bone fracture, suffered while running for a bus. Then one day he turned his right foot at work. The medical department did not know of this incident until a week later when the employee reported to First Aid that his podiatrist had discovered a chipped fracture of the right fifth metatarsal bone. He started losing time from work on that day.

Decision: This should be considered a work injury and included in the rates on the basis that it was an aggravation of a pre-existing condition.

CASE 718 (5.14)

A shipper suffered a severe contusion of the right great toe. X-ray was negative, but the employee was treated with paraffin bath daily for five days. Two days later he was discharged as completely recovered. A week after his discharge, the man reported to First Aid with a dermatitis of the right ankle. He was referred to a dermatologist for consultation and treatment, and the diagnosis was dermatitis venenata due to paraffin.

Decision: This lost time should not be included in the work injury rates on the basis that the employee did not lose time because of the injury to his right toe, but rather because of the reaction to paraffin used in the treatment.

CASE 719 [A1.6 (f)]

A 68-year-old female clerk was on her way to work. She had descended from a bus at a bus stop, climbed the set of stairs on company property, and was walking on a sidewalk on company property, approaching one of the company entrance gates, when she stepped on a stone on the sidewalk and fell. The injury resulted in a fractured hip which required surgery and hospitalization. The company believed that except for the woman's age and pre-existing arterial diseases, recovery would have been normal and reasonable, and a ruling as to time charges was requested.

Decision: This injury should be included in the rates on the basis that, although the employee had not passed through the plant gate at the time of injury, she was on plant property and was using the walk provided by the company as the means of access to her workplace. The committee pointed out that the "entrance to plant property" means the point of departure from the public walk or road, and entrance upon the access ways provided by the company on property it owns or controls. A set-back gate does not establish that point as the entrance to plant property. The time charge for this injury should be based upon the opinion of the physician as to the probable recovery time and extent of disability in accordance with the provisions of paragraphs 4.5 (b) and 5.18.

CASE 720 (5.18)

Incomplete facts—no decision rendered.

CASE 721 (5.2)

Incomplete facts—no decision rendered.

CASE 722 (5.2)

An employee was removing a reducer in the paper company's bleachery. This reducer was located on a concrete pad about 5 ft high, not allowing much room in which to work between the reducer and the ceiling. During the process of removing the reducer, the employee twisted his back and felt a sharp pain which he reported immediately to his assistants and his supervisors.

The policy was that the employee had the initial choice of a doctor — or chiropractor — within a radius of 5 miles. If he chose to have medical treatment outside the 5-mile area, then he must travel at his own expense. After this particular incident the employee in question stated that he wanted to visit a chiropractor for treatment, but the nearest city was approximately 150 miles away from the company. The employee continued to work every day at his regular, scheduled job until the day of his appointment with the chiropractor, a week or so later. In order to travel to the city for this appointment, the employee lost about a day and a half work, and after receiving one treatment he returned to his regular, scheduled job.

Decision: This injury should not be included in the rates on the basis that the employee's visit to the chiropractor was not really necessary as an outcome of the injury, but merely for the employee's convenience.

CASE 723 (5.2)

As a female employee was leaving work, but while she was still within the company building, she was accidentally jostled by a fellow employee, and fell. She returned to work the following day, but because she complained of pain in her back, she was examined by the company doctor, who diagnosed her condition as "contusion to the back and hip." She continued to work while receiving periodic treatments for back pain. Because of continued complaints, she was first referred to a neurosurgeon, who stated that her symptoms were due to muscular strains, and then to an orthopedist, whose findings were consistent with those of the neurosurgeon. The employee continued to complain of pain, and was referred to a medical clinic for further diagnostic studies. As a result of being hospitalized for these studies, she was not at work for three weeks. The opinion of the doctors who made the studies was that there was no organic or physical impairment and that further treatment should be of a psychiatric nature.

Decision: This should be considered a temporary total disability and included in the work injury rates on the basis that the observation and diagnosis in the hospital arose out of the injury and prevented the employee from working during the three-week time interval.

CASE 724 (5.13)

A trackman at the mine received a blow on the head by a spike maul. He was immediately taken to the emergency hospital for treatment and x-rays, and was observed by company doctors who determined that the injury was in reality slight. The injured person was released for work. He continued to work his regularly assigned shifts for 20 days, at the end of which time he was laid off due to a reduction in force which affected approximately 600 employees.

During the next month, while this man applied for and received unemployment compensation, he complained to the company doctors about headaches and neck pains. They referred him to a specialist who recommended that he be hospitalized for observation. He remained in the hospital for seven days while many tests were made of his condition. The results were found negative, and no permanent disability was reported by the doctor. No treatment or medication was given the patient during his hospitalization.

Because the man was hospitalized 7 days, he lost 2 weeks of unemployment compensation which the company paid, together with all hospital expenses. However, the company doctors stated that if the man had not been laid off as a result of the reduction in force, he would have been physically able to have continued working at his regular, assigned job without any loss of time due to the accident. The company questioned whether it would have to include this case as a disabling injury in its records.

Decision: This should be considered an industrial injury and included in the work injury rates with a time charge of seven days. Paragraph 5.13 is precise and exact in specifying an observation period "not to exceed 48 hours." In this case the observation period lasted seven days, and, therefore, is reportable.

Members of the American Standards Association may borrow from the ASA Library copies of any of the following standards recently received from other countries. Orders may also be sent to the country of origin through the ASA office. Titles are given here in English, but documents are in the language of the country from which they were received. An asterisk * indicates that the standard is available in English as well. For the convenience of readers, the standards are listed under their general UDC classifications. In ordering copies of standards, please refer to the number following the title.

NOTE: A further shipment of English translations of German standards has been received by the American Standards Association. A list of all these standards is available upon request. This list includes prices and information for purchasing copies.

STANDARDS FROM OTHER COUNTRIES

003.62 SIGNS, NOTATIONS, SYMBOLS

Argentina (IRAM)

Common units (symbols and definitions) IRAM 2

France (AFNOR)

Signs and symbols for measurement units FD X 02-004

Germany (DNA)

Assignment of numbers to different materials DIN 17007

389 METROLOGY, WEIGHTS AND MEASURES

Austria (ONA)

Measuring units for lengths, area, volume, angle ONORM A 6433

France (AFNOR)

Principal American and British units of measurement FD X 02-050

India (ISI)

Metric steel tape measures IS:1270

539.16 RADIOACTIVITY

Japan (JISC)

Radioactive dust samplers JIS Z 4601
Shielding containers of radioactive materials JIS Z 4602
Medical x-ray protective eyeglasses JIS Z 4804

621.3 ELECTRICAL ENGINEERING

Argentina (IRAM)

Electrical discharge lamps IRAM 2136
Mica and micanite for electrical use, test methods of IRAM 2132
Mica muscovite for capacitors IRAM 2137

Austria (ONA)

Test apparatus for spray water protection ONORM E 1355
2 stds for rings and reels for transport of insulated wires and cables ONORM E 3900,-5
Oil filler and ventilation caps for oil extension container ONORM E 4763

Canada (CSA)

Construction and test of receptacles, plugs and similar wiring devices C22.2 No. 42-1959

Czechoslovakia (CSN)

Reversing switch for 12/24 v storage battery CSN 30 4440
Single pole cut-off switch for storage battery CSN 30 4441
Coordination of insulation in the a-c network installations CSN 34 0028
Contactors, electromagnetic CSN 35 4150

Germany (DNA)

Current directional indicator symbols for power and telecommunication lines DIN 40706
Graphic symbols for transformers and choking coils for power and telecommunication lines DIN 40714
Tube poles for electrical sirens 125 to 500 v DIN 41097
Low-magnetic core for coils DIN 41286
G-type safety socket, E16, 10 A 250 v DIN 41567
11 stds for component parts of ceramic insulator, 60-110 kv, for inside installations, Groups A, B, C DIN 48100, 48101, 48102, 48134
7 stds for component parts of through-bushing, 1-30 kv, Group B, for inside installations DIN 48104, 48105, 48107
2 stds for ceramic insulator, 60-110 kv, for outside installations DIN 48109
Anchor-bars, plate and eye-nut for power and telecommunication overhead lines below 1 kv DIN 48324
Plastic self-sticking insulating bands, dimensions DIN 40631
Reverse switch 60 v for telecommunication DIN 41566
Motors for sewing machines DIN 42691
Control handles for switchgears DIN 46003
Ignition coils for automobiles DIN 72531
High voltage connections for ignition coils and distributors DIN 72535

India (ISI)

Leclanché type dry batteries for flashlights IS:203
Leclanché type inert cells IS:267
Lead-acid storage batteries (heavy duty) for motor vehicles IS:985
Electric toasters IS:1287
Three-pin plugs and socket outlets IS:1293

Israel (SII)

Squirrel cage asynchronous motors S.I. 298*

Netherlands (NEN)

Denomination and indications of insulated power cables with copper conductors NEN 3207

Poland

Transformers, general rules for PN E-06040
Pliers, insulated for electrician PN E-08503
Taboret, insulated for electrician PN E-08504

Rumania (OSS)

Porcelain isolating tubes STAS 5764-58
3 stds for porcelain thru-insulators STAS 5851/3-58

Union of South Africa (SABS)

List of electrotechnical terms: Group 10: Machines and transformers SABS 042-10-1958
Standard specification for fixed electric storage water heaters SABS 151-1958
Standard specification for wall outlet boxes and cover plates SABS 518-1959

USSR

Three-phase electric motors from 10 w to 10,000 kw GOST 7217-59
System of marking electric network diagrams GOST 9099-59

621.82 TRANSMISSION SYSTEMS AND PARTS

Germany (DNA)

Ball bearing, shoulder type DIN 615
Retaining rings for roller bearing DIN 5417
Removable bushing for roller bearings DIN 5416
Felt rings for roller bearings DIN 5419

Poland

2 stds for needle bearings PN M-86294,-86310

Rumania (OSS)

2 stds for ball bearing locking devices STAS 5814/5-58

USSR

Radial ball bearings, single row, with outer or inner split rings GOST 8995-59

621.86./87 MECHANICAL HANDLING AND HOISTING EQUIPMENT

France (AFNOR)

Elevators and hoists. Suspension equipment NF P 82-202

Germany (DNA)

Crane rails, type A DIN 536
15 stds covering different components of crane wheels and gears DIN 15070/81, 15082, 15083

Poland

Pallets, definition and classification PN M-78200
Pulleys for conveyor belts PN M-46601

Portugal (IGPAI)

6 stds for conveyor belts P-211/5

Rumania (OSS)

Cranes and other hoisting equipment: admissible wind load STAS 2843-58

USSR

Overhead traveling cranes, standard spans GOST 534-59
Pallets, different types and sizes GOST 9078-59

621.88 MECHANICAL ATTACHMENT AND FIXING

Austria (ONA)

Metric fine thread, pitch = 1.5 mm ONORM M 1509
Metric fine thread, pitch = 4 mm ONORM M 1512
Whitworth threads for pipes and fittings ONORM M 1526
Threads for sheet-metal screws ONORM M 1531
Metric profile threads ONORM M 1570
Wing-thumb screws, metric thread ONORM M 5137
Screw plugs, metric fine thread ONORM M 5177
Pan-head self-tapping screw ONORM M 5360
Countersunk head self-tapping screws ONORM M 5361

France (AFNOR)

Plain parallel stock keys and keyways. Tolerances NF E 22-173
25 stds for different types of set screws, headless, hexagon head, socket head, etc NF E 27-114/127, -161/4, -166/9, -209, -214/5
Unfinished or polished studs NF E 27-241
10 stds for different types of bolts: plain, carriage, plough, etc NF E 27-312/4, -341/2,-351/4, -357
Axle-bolts NF E 27-381
Series of threaded plugs on rod NF E 27-431
8 stds for different types of nuts NF E 27-141, -452/8
Metric screw thread with ISO profile (replacing profile SI) NF E 03-001
Metric screw threads: general survey NF E 03-013
Metric screw threads for bolts, general survey NF E 03-014
Metric screw threads: tolerances. Mean quality PN E 03-100
Screw with slotted cylindrical head for metal. Diameters from 1.6 mm to 24 mm PN E 27-112
Countersunk head screws for metal. Diameters from 1.6 mm to 24 mm PN E 27-113
Square or hexagon head screws. Diameters from 1.6 mm to 80 mm PN E 27-311
Square or hexagon nuts. Diameters from 1.6 mm to 80 mm PN E 27-411

Germany (DNA)

9 stds for different types of nails and hooks DIN 1151/3,5/8, 1161,3
Steel staples DIN 1159
2 stds for suspension hooks for electric lamps DIN 49981/2
Hinges used on locomotives DIN 31211

India (ISI)

Combined key for hydrant, hydrant cover and lower valve IS:910

Israel (SII)

Unified screw threads: basic sizes S.I. 286*
Unified coarse screw thread (UNC): limits S.I. 287*
Unified fine screw thread (UNF): limits S.I. 288*
Whitworth screw thread: free fit S.I. 289*

Japan (JISC)

Wire nails JIS A 5508

Poland

Side-cutter pliers, plain PN M-64431
Side-cutter, gas pipe pliers PN M-64441

Rumania (OSS)

Spring stop rings for shafts and hubs STAS 5848-58

Spain (IRATRA)

Hammer-head bolts UNE 17021

United Kingdom (BSI)

Spiral ratchet screw drivers and bits BS 3118:1959

USSR

Hexagon nuts, finished, sizes GOST 9064-59
Washers, round, finished GOST 9065-59
Pins, straight, both ends threaded GOST 9066-59
Flanges, malleable iron, sizes GOST 9067-59

666 GLASS AND CERAMIC INDUSTRY

Czechoslovakia (CSN)

Opal pressed glass plate used by dentists CSN 70 8310
Ceramic tiles, fine grain, for floor covering CSN 72 4820

United Kingdom (BSI)

Limestone for making colorless glasses BS 3108:1959

667.6/.8 PAINTS. VARNISHES. LACQUERS

Australia (SAA)

Exterior oil gloss paint for general use SAA K.111-1959

Ireland (IIRS)

White spirit I.S. 11
Liquid driers for oil paints I.S. 15
Knotting I.S. 16

Israel (SII)

Shoe polish paste S.I. 292*

Netherlands (HCNN)

Boiled linseed oils and lithographic varnishes NEN 598
Tungoil. Raw for paints, varnishes and lacquers NEN 599
Raw and boiled linseed oil for paints, varnishes and lacquers NEN 600

USSR

Colloxylene used in lacquer and enamel industry GOST 5936-59

668.3 ADHESIVES

Argentina (IRAM)

Adhesives, general methods of test IRAM 3032
Liquid senegal glue IRAM 3033
Liquid starch glue IRAM 3034
Starch gluing paste IRAM 3035

Czechoslovakia (CSN)

Hide glue CSN 66 8521
Gelatin, technical CSN 66 8526

Israel (SII)

Casein glue S.I. 308*

677.05 TEXTILE MACHINERY, PLANT AND EQUIPMENT

France (AFNOR)

Definitions of right and left sides of spinning machines NF G 40-001
Cylindrical recipients for ribbons NF G 40-002
Spindle gage for ring spinning and ring doubling frames NF G 40-003
Rings for ring spinning and ring doubling frames NF G 40-004
Diameters of drafting rollers for cotton, wool, spun silk and staple fiber NF G 40-005
Definitions of right and left sides of looms NF G 42-002
Looms, working width NF G 42-003
Interchangeable pirns for automatic looms NF G 42-004
Shuttles NF G 42-006
Definitions of right and left sides of preparatory machines for weaving NF G 42-501
3 stds for different sizes of cones for cross winding NF G 502/4

678.5 PLASTICS

Germany (DNA)

Cellulose acetobutyrate (CAB) material for injection casting DIN 7743
Hard PVC pipes and plates, chemical stability of DIN 16929
Hard plastic tissue. Plates. Strips DIN 40606

Netherlands (NEN)

Determination of the percentage of acetone-soluble matter in phenolic mouldings NEN 2171
Determination of rate of incombustibility of self-extinguishing rigid plastics NEN 3131
Determination of apparent density and bulk factor of plastics NEN 2174

681.8 SOUND RECORDING, REPRODUCTION

Germany (DNA)

3 stds for records for 78, 45 and 33 revolutions per minute, respectively DIN 45533, 6/7

News Briefs . . .

• THE SERIES of high-speed steel straight shank reamers has been greatly extended in the revised edition of American Standard B5.14-1959. This, and revision of nomenclature to conform to that used in the revised standards for other metal-cutting tools, such as twist drills, milling cutters, and taps, are the principal revisions in this recently published standard. Minor corrections have also been made in tables of sizes and types, as well as in tolerances of various elements, to reflect current requirements.

Copies of the American Standard on Reamers, B5.14-1959, are now available at $2.50.

• EXPERT PHOTOGRAPHERS and careful librarians have always advocated protecting films, plates, and papers in suitable sleeves or envelopes. Ordinary envelopes won't do, however. They have diagonal seams that leave pressure marks on the film, and chemicals in their paper and adhesives can react with residual photographic processing chemicals and leave streaks. These dangers are eliminated if the enclosure conforms to American Standard requirements.

A revision of American Standard Requirements for Photographic Filing Enclosures for Storing Processed Photographic Films, Plates, and Papers, PH4.20-1958, has been approved and published by the American Standards Association. The previous edition was designated Z38.8.21-1950.

The standard gives the principal physical and chemical requirements for paper filing enclosures particularly designed for storing processed black-and-white or color films, plates, and papers. It does not cover the requirements of plastic envelopes and sheaths.

Envelopes, jackets, or sheaths made according to this American Standard protect photographic materials from dirt and mechanical damage. Specifications and tests are given for paper and adhesives free from chemicals that might react with processing chemicals sometimes remaining on film.

Sketches of suggested designs are shown, with seams at the edges only to prevent pressure marks on the film or paper stored in them. Other specifications and tests are given to insure strength and, if desired, resistance to fungus.

Copies of American Standard Requirements for Photographic Filing Enclosures for Storing Processed Photographic Films, Plates, and Papers, PH4.20-1958, are available at 60 cents a copy.

• THE NATIONAL Bureau of Standards has added a new series of 10^{-9}-g and 10^{-11}-g radium standards to the list of radioactive samples it prepares and distributes. These radium solutions were prepared recently by W. B. Mann, L. L. Stockmann, and A. Schwebel of the Bureau's Radioactivity Section.[1] This new series was made up to restock the nearly depleted and less accurate 1940 supply of radium standards in this range. To provide standards with activities between the 10^{-9}-g and 10^{-11}-g values, new "blank solutions," containing 0.02 x 10^{-12} g of radium, have also been made available for dilution purposes.

These radium solution standards were issued as part of the Bureau's program to supply standards in all areas of the physical sciences. Radioactivity standard samples, such as these, are being widely used in the fields of physics, chemistry, biology, and medicine to control processes and maintain accurate equipment and apparatus.

• THE CANADIAN STANDARDS ASSOCIATION was in charge of arrangements for the Fourth Commonwealth Standards Conference which was held in Ottawa from August 26 through September 3. Delegates from Australia, Canada, India, New Zealand, Pakistan, Union of South Africa, and the United Kingdom participated. The Canadian delegation was led by R. S. Eadie, president of the Canadian Standards Association.

During the general sessions, present methods of collaboration between the Commonwealth standards bodies were reviewed to bring about alignment, coordination, and simplification of Commonwealth standards. Progress reports were presented on technical subjects considered at the 1957 Delhi Conference, and future work was planned in the fields of safety of domestic electrical appliances, cables, and electrical equipment of machine tools. Other sessions were dedicated to the standardization of certification markings, modular coordination in building, approvals schemes and consumer goods, as well as the relation between standards organizations and the defense services.

Discussion of problems of inch and metric dimensions in standards particularly concerned India's position in relation to other Commonwealth countries. India has officially adopted the metric system, whereas the other Commonwealth countries use the inch system.

• PAUL W. WYCKOFF, director of engineering, Airtemp Division of the Chrysler Corporation, has become a member of the ASA Standards Council. Chairman of the Standards Committee of the American Society of Heating, Refrigerating, and Air Conditioning Engineers, he represents the Society on the Standards Council. Mr Wyckoff has also been active in the Air Conditioning and Refrigeration Institute and is a member of the ARI General Standards Committee. He has been associated with the Chrysler Corporation in various engineering and management capacities since 1939.

Paul W. Wyckoff

[1] Preparation of new solution standards of radium, by W. B. Mann, L. L. Stockmann, W. J. Youden, A. Schwebel, P. A. Mullen, and S. B. Garfinkel, J. Research NBS 62, 21 (1959) RP2924.

• BECAUSE A METRIC series of needle roller bearings has been submitted to the International Organization for Standardization's Technical Committee 4, the American Standards Association has requested consideration of a parallel standard in the inch series. The metric series was submitted by the German standards association. ASA has presented a definite proposal to the technical committee for study.

Technical Committee 4, Ball and Roller Bearings, has completed four standards. which have been approved and published as ISO Recommendations. These are: Ball and Roller Bearings, R15-1955; Methods of Evaluating Static Load Ratings, R76-1958; Boundary Dimensions, R104-1959; and Accessories, R113-1959. Four others are in draft form, covering dimensions of tapered roller bearings — metric series; tolerances for ball and roller bearings; dimensions of tapered roller bearings — inch series; and separate thrust collars for cylindrical roller bearings.

ISO/TC 4 is meeting in Berlin, October 5-10. The U. S. delegation consists of five delegates and one observer, with Gunnar Palmgren, SKF Industries, as leader of the delegation.

• THE TWO COMMITTEES on shipbuilding details — one on shipbuilding for sea navigation, ISO/TC 8, and the other for inland navigation, ISO/TC 9, have been merged into one, the International Organization for Standardization announces. The new committee, entitled Shipbuilding Details, ISO/TC 8, will work under the secretariat of the Netherlands.

• A TRANSLATION of the French book on company standards, *Memento de L'Ingenieur de Normalisation d'Enterprise*, is being published by the Standards Engineers Society. The first installment appears in the June-July issue of The Society's publication, *Standards Engineering*. The translation has been made available to SES by The American Society of Mechanical Engineers.

The book was compiled by AFNOR, the French national standards association, and is the first book of its kind to present an analysis of the philosophy and operations of company standards departments.

• DR FRANCIS B. SILSBEE, internationally known authority on electrical theory and technology, retired on July 31 as chief of the Electricity and Electronics Division of the National Bureau of Standards. Dr Silsbee had been with the Bureau for 48 years.

Appointed division chief in 1946, Dr Silsbee had directed the work of Bureau laboratories responsible for establishment and maintenance of the basic electrical units, for testing standard electrical apparatus and instruments used in science and industry, development of new methods for measuring electrical quantities, determination of the electrical, magnetic, and electrochemical properties of a wide range of materials, and development and testing of electronic devices and components.

Dr Silsbee has for many years given valuable service to standardization efforts through his work with ASA committees in the electrical field. He has served as chairman of Sectional Committee C12, Code for Electricity Meters, and a member of the Electrical Standards Board of ASA. He gave up most of his memberships in ASA committees at the time of his retirement, but is still a member of Committee C42, Definitions of Electrical Terms.

• A NEW TECHNICAL COMMITTEE was created and a new member-body was accepted by the Council of the International Organization for Standardization at its meeting July 13-16 in Geneva, Switzerland.

Terminology, dimensions, and functioning characteristics of office machines will be the scope of the new technical committee, designated ISO/TC 95. The Italian national standards body, which had proposed the project, accepted the secretariat. The purpose is to facilitate interchangeable use of office equipment from various countries; promote international trade in office equipment; and simplify office procedures of companies operating branches in several countries. The U. S. is not actively participating in ISO/TC 95 at present, but as an observer will be kept informed of the proceedings.

Venezuela is the new ISO member-body (see page 298). Acceptance of Venezuela as a member brings the membership of ISO to 41.

In reviewing the progress of work in the last twelve months, the Council noted that 47 new ISO Recommendations have been approved. These covered problems in the fields of screw threads, cinematography, plastics, ball and roller bearings, bibliographical references, methods of chemical analysis, hardness test for steel, metal food containers, petroleum, aircraft, colorfastness of textiles, and shipbuilding.

The Council acted to speed the work of technical committees by authorizing them to combine the various steps in the development and approval of international recommendations whenever possible. It also adopted new methods to strengthen its procedures for approval of standards developed by other international organizations.

Because of the widespread application of safety standards, the Council authorized ISO/TC 80, Safety Colors, to maintain a central register of all safety symbols that may be adopted by the various ISO technical committees. It also gave the committee responsibility for advising other ISO technical committees on the use of safety colors.

In the interest of international protection against radiation hazards, ISO/TC 85, Nuclear Energy, was given the responsibility for establishing a basic symbol to indicate radiation danger. ISO/TC 88, Pictorial Marking of Handling Instructions for Goods, was assigned responsibility for establishing a symbol to be used on packages to indicate radiation danger. The Council specified that this symbol should be comprehensible to workers at all levels, and should incorporate the basic symbol for radiation danger adopted by ISO/TC 85.

Professor Doctor Edouard Wegelius (Finland), president of ISO, presided at the Council meeting, assisted by Vice Admiral George F. Hussey, Jr, (USA), ISO vice-president, Jacques de Saugy (Switzerland), treasurer, and Henry St. Leger (USA), general secretary.

The next ISO Council meeting is to be held in Geneva from June 27 to July 1, 1960, and the next triennial General Assembly of ISO will be in Finland, June 8-18, 1961.

New Books . . .

MODEL CODE OF SAFETY REGULATIONS (IONIZING RADIATIONS). *Part 2, Manual of Industrial Radiation Protection.* 1959. 54 *pp. International Labor Office, Washington Branch,* 917 *15th Street, N.W., Washington* 5, *D. C.* $0.75. Applies to industrial establishments where radioactive substances, sealed or unsealed, are stored, handled, operated, or used, or where equipment capable of producing ionizing radiations is operated or used. The book gives definitions of terms relating to radiation and states and explains the maximum permissible doses of exposure. These are in accordance with the recommendations of the International Commission on Radiological Protection, adopted in September 1958. General provisions relating to all processes involving radiation hazards are outlined, with corresponding recommendations for radiation protection devices, procedures, and requirements for medical control of exposed workers. Specifications for sealed sources and equipment generating ionizing radiations are given as well as those for unsealed radioactive sources, including the handling of radioactive waste.

ASTM STANDARDS ON MINERAL AGGREGATES AND CONCRETE (WITH SELECTED HIGHWAY MATERIAL). 1958. 360 *pp. American Society for Testing Materials,* 1916 *Race Street, Philadelphia* 3, *Pa.* $4.75. This publication compiles about 105 standard and tentative specifications, test methods, and definitions of terms pertaining to mineral aggregates and concrete, including selected highway materials. Twenty-five standards given herein were approved as American Standards.

SAFETY AND HEALTH IN DOCK WORK. *I.L.O. Codes of Practice. 1958. International Labor Office, Washington Branch, 917 15th Street, N.W., Washington 5, D.C. $1.00.* This code supplements the 1932 convention adopted by the International Labour Conference in 1932, and is intended as a practical guide to the promotion of occupational safety and health in dock work. R. W. Netterstrom, safety consultant, Bureau of Labor Standards, U. S. Department of Labor, was the U. S. representative on the international committee that developed the code.

THE EFFECT OF RADIATION ON MATERIALS. *Vol. III.* 1959. 168 *pp.* 6 *x* 9. *American Society for Testing Materials,* 1916 *Race Street, Philadelphia* 3, *Pa.* $4.25. Sponsored jointly by ASTM and the Atomic Industrial Forum, this third symposium is divided into three parts, dealing with dosimetry techniques, radiation facilities and techniques, and with radiation effects. All the information given herein is based on new data on nuclear power, radiation shielding, and the design and construction of nuclear facilities.

ASTM STANDARDS ON TEXTILE MATERIALS (WITH RELATED INFORMATION). *1958. 858 pp. American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa. $7.50.* Contains definitions and terms, methods of testing, and specifications for textiles and related materials. Additional material appearing in appendixes as information includes tables on basic properties of textile fibers, for yarn number conversion, and relative humidity; proposed recommended practice for calculating number of tests; and drafts of several new test methods. About one-third of the standards presented here were approved as American Standards.

. . . Questions

Have American Standards been established on the application of ductile iron to large, medium pressure valves? If so, what are the pressure and temperature limitations involved?

There are no existing American Standards covering this subject although it is being considered by the ASA Sectional Committee on the Code for Pressure Piping, B31, and on Standardization of Pipe Flanges and Fittings, B16. However, a ruling has been issued on the use of this material in connection with the ASME Pressure Vessel Code. This is Case No. 1211-1 of the ASME Boiler Code Interpretation.

Doesn't the Government gain by participating in ASA committees which bring together experts from all areas concerned? Shouldn't the Government then use standards so developed?

Government participation in the technical work of ASA and other standards organizations is an effective and economical means of keeping up to date with current technological developments. Often, however, the standards so developed represent compromises between a variety of interests and commercial pressures so that the Government as a very large purchaser may find it advantageous to use a different standard specifically adapted to its own needs.

—Reply by Dr A. T. McPherson to question asked at a National Conference on Standards.

How do American Standards treat patented products?

The recently approved revision of the *Guide for Organization and Work of ASA Sectional Committees* states the principle which guides the American Standards Association regarding patents. The section referring to patents reads:

"*Patents.* Standards should not include items whose production is covered by patents unless the patent holder agrees to and does make available to any interested and qualified party a license on reasonable terms or unless other unpatented competing items are included within the standards and the patented item would suffer were it left out."

On the other hand, ASA recognizes that situations may arise where it it necessary to cover a patented product. The *Guide* outlines procedures that should be followed in such a situation. Under these procedures, the committee should place on record the fact that it has carefully considered ASA's policy before deciding to refer to the patented items and also that the patent holder has submitted the contract by which he agrees to license his patent to ASA's legal counsel for review.

If your company is a member of the American Standards Association, it is entitled to receive membership service copies of these newly published American Standards. The ASA contact in your company receives a bimonthly announcement of new American Standards, which also serves as an order form. Find out who your ASA contact is and order your American Standards through him. He will make sure your company receives the membership service to which it is entitled.

AMERICAN STANDARDS

Just Published . . .

As of September 18, 1959

ELECTRIC AND ELECTRONIC

National Electrical Code, NFPA No. 70, ASA C1-1959 (Revision of C1-1956) $1.00

Contains requirements designed to ensure the practical safeguarding of persons and buildings from electrical hazards arising from the use of electricity for light, heat, power, radio, signalling, and other purposes.

Sponsor: National Fire Protection Association

Television Luminance Signal Levels, Method of Measurement of, C16.31-1959 $0.60

Sponsor: Institute of Radio Engineers

400-Watt BT-37 (H1) Fluorescent Mercury Vapor Lamp, Dimensional and Electrical Characteristics of, C78.1304-1959 (Revision of C78.1304-1957) $0.35

400-Watt BT-37 (H1) Mercury Vapor Lamp, Dimensional and Electrical Characteristics of, C78.1305-1959 (Revision of C78.1305-1957) $0.35

Sponsor: Electrical Standards Board

Rigid Steel Conduit, Zinc Coated, Specification for, C80.1-1959 (Revision of C80.1-1953) $0.80

Requirements for conduit, couplings, elbows, bends, and nipples used as a raceway for wires or cables of an electrical system. Includes specifications for materials, zinc coating, threads, ductility, and dimensions and weight.

Rigid Steel Conduit, Enameled, Specification for, C80.2-1959 (Revision of C80.2-1953) $0.80

Requirements for conduit, as well as couplings, elbows, bends, and nipples used as a raceway for wires, or cables of an electrical system. Includes specifications for materials, enamel coating, threads, ductility, and dimensions and weight.

Electrical Metallic Tubing, Zinc Coated, Specification for, C80.3-1959 [Revision of C80.3-1950 (R1953)] $0.80

Requirements for zinc coated electrical metallic tubing (steel), elbows and bends used as a raceway for wires and cables of an electrical system. Includes specifications for materials, zinc coating, enamel coating, ductility, and dimensions and weight.

Sponsors: American Iron and Steel Institute; National Electrical Manufacturers Association

Relays, Definitions and Terminology for, C83.16-1959 $2.00

Sponsor: Electronic Industries Association

GAS-BURNING APPLIANCES

Domestic Gas Conversion Burners, Z21.-17a-1959 (Addenda to Z21.17-1958) $0.20

Minimum limiting construction and performance requirements and test methods to ensure safe operation, durable construction, and acceptable performance for domestic conversion burners having input ratings at normal test pressure of not more than 400,000 Btu per hour for use with natural, manufactured, and mixed gases; for use with liquefied petroleum gases; or for use with LP gas-air mixtures.

Sponsor: American Gas Association

MATERIALS HANDLING

Pallet Sizes, MH1.1-1959 $2.00

Establishes eight rectangular and three square pallets as standard non-captive pallets. Only length and width dimensions are given; height varies according to the material used in construction. Criteria for selection of one size over another are also given.

Sponsor: American Society of Mechanical Engineers; Society of Packaging and Handling Engineers

PHOTOGRAPHY

16mm Azimuth Test Film, Magnetic Type, PH22.114-1959 $0.35

Specifies a test film with full-width magnetic coating having a magnetic sound record to be used for aligning the azimuth heads on 16mm magnetic recording and reproducing equipment.

Sponsor: Society of Motion Picture and Television Engineers

SAFETY

Safety Code for Powered Industrial Trucks, B56.1-1959 (Revision of B56.1-1955) $0.50

Safety requirements relating to the elements of design, operation, and maintenance of industrial power trucks of both the driver-ride and driver-lead type, such as platform trucks, tractors, low-lift trucks, high-lift trucks, fork trucks, special industrial trucks, etc, but not including motor vehicles intended for use on land highways.

Sponsor: American Society of Mechanical Engineers

. . . In Process

BUILDING AND CONSTRUCTION

American Standard Approved

Areas in Hospitals and Related Facilities, Method of Determining, Z65.4-1959

Sponsors: National Association of Building Owners and Managers; Office of Education, Dept of Health, Education and Welfare

In Standards Board

Door and Frame Preparation for Mortise Door Locks, Specifications for, A115.1-

Door and Frame Preparation for Board or Cylindrical Locks for 1¾-in. Doors, Specifications for, A115.2-

Door and Frame Preparation for Bored or Cylindrical Locks for 1⅜-in. Doors, Specifications for, A115.3-

Door and Frame Preparation for Lever Extension Flush Bolts, A115.4-

Sponsor: National Builders Hardware Association

Dry-Set Portland Cement Mortar, Specification for, A118.1-

Sponsor: Tile Council of America

DRAWINGS, SYMBOLS AND ABBREVIATIONS

American Standards Approved

Letter Symbols for Rocket Propulsion, Y10.14-1959

Sponsor: American Society of Mechanical Engineers

Graphical Symbols for Welding, Y32.3-1959 [Revision of Z32.2.1-1949 (R1953)]

Sponsors: American Society of Mechanical Engineers; American Institute of Electrical Engineers

In Standards Board

Letter Symbols for Feedback Control Systems, Y10.13-

Sponsor: American Society of Mechanical Engineers

ELECTRIC AND ELECTRONIC

American Standard Approved

Distribution, Power, and Regulating Transformers and Reactors Other Than Current - Limiting Reactors, Requirements, Terminology, and Test Code for: Section 20—Overhead-Type Distribution Transformers, 67,000 Volts and Below, 500 kva and Smaller, C57.12.20-1959 (Revision of C57.12.-20-1958)

Sponsor: Electrical Standards Board

In Standards Board

Insulation Resistance of Electrical Insulating Materials, Methods of Test for, ASTM D 257-58; ASA C59.3- (Revision of ASTM D 257-54T; ASA C59.-3-1955)

Woven Cotton Tapes for Electrical Purposes, Specifications for, ASTM D 335-51; ASA C59.39-

Sponsor: American Society for Testing Materials

Withdrawal Being Considered

Power-Operated Radio Receiving Appliances, Safety Standard for, C65.1-1954

Sponsor: Underwriters' Laboratories

20-Millimeter 52-Inch Cold-Cathode Fluorescent Lamp, C78.1100-1951

20-Millimeter 64-Inch Cold-Cathode Fluorescent Lamp, C78.1101-1951

20-Millimeter 76-Inch Cold-Cathode Fluorescent Lamp, C78.1102-1951

20-Millimeter 84-Inch Cold-Cathode Fluorescent Lamp, C78.1103-1951

20-Millimeter 93-Inch Cold-Cathode Fluorescent Lamp, C78.1105-1951

Sponsor: Electrical Standards Board

MATERIALS HANDLING

In Standards Board

Shipping Cases for Petroleum Containers, MH7.1-

Sponsor: Petroleum Packaging Committee—Packaging Institute

Standard Submitted

Metal Drums and Pails, Specifications for, MH2.1-through MH2.10- (Revision of MH2.1-1958 through MH2.10-1958)

Sponsor: Steel Shipping Container Institute

MECHANICAL

American Standard Approved

Drill Drivers, Split-Sleeve, Collet Type, B5.27-1959 (Revision of B5.27-1951)

Sponsors: American Society of Tool Engineers; Metal Cutting Tool Institute; National Machine Tool Builders' Association; Society of Automotive Engineers; American Society of Mechanical Engineers

In Board of Review

Throw-Away Carbide Inserts, Specifications for, B80.1-

Sponsor: Cemented Carbide Producers Association

In Standards Board

Rotating Air Cylinders and Adapters, B5.5- (Revision of B5.5-1954)

High Speed and Cast Nonferrous Single Point Tools and Tool Holders, B5.29-

Sponsors: American Society of Tool Engineers; Metal Cutting Tool Institute; National Machine Tool Builders' Association; Society of Automotive Engineers; American Society of Mechanical Engineers

MISCELLANEOUS

Reaffirmation Approved

Practice for Certification Procedures, Z34.1-1947 (R1959)

Sponsor: Association of Consulting Chemists and Chemical Engineers

OFFICE EQUIPMENT AND PROCEDURES

In Board of Review

Paperwork Procedures Charting, X2.3.4-

Remote Dictation Through an Intercommunication Switching System, Minimum Requirements for, X2.5.21-

PHOTOGRAPHY

American Standard Approved

35-Millimeter Film Magazines and Film for Still Picture Cameras, PH1.14-1959 (Revision and combination of PH1.14-1953 and Z38.1.49-1951)

Sponsor: Photographic Standards Board

In Standards Board

Theater Sound Test Film for 35mm Motion Picture Sound Reproducing Systems, PH22.60- [Revision of PH22.60-1948 (R1953)]

Sponsor: Society of Motion Picture and Television Engineers

Reaffirmation Approved

16mm Positive Aperture Dimensions and Image Size for Positive Prints Made from 35mm Negatives, PH22.46-1946 (R1959)

Negative Aperture Dimensions and Image Size for 16mm Duplicate Negatives Made from 35mm Positive Prints, PH22.47-1946 (R1959)

Enlargement Ratio for 16mm to 35mm Optical Printing, PH22.92-1953 (R1959)

Sponsor: Society of Motion Picture and Television Engineers

PIPE AND FITTINGS

American Standards Approved

Seamless Carbon-Steel Pipe for High-Temperature Service, Specifications for, ASTM A 106-58T; ASA B36.3-1959 (Revision of ASTM A 106-55T; ASA B36.3-1956)

Electric-Fusion (Arc) Welded Steel Pipe (Sizes 4 in. and Over), Specifications for, ASTM A 139-58T; ASA B36.9-1959 (Revision of ASTM A 139-55; ASA B36.9-1956)

Seamless Steel Boiler Tubes, Specifications for, ASTM A 83-58T; ASA B36.12-1959 (Revision of ASTM A 83-56T; ASA B36.12-1958)

Electric - Resistance - Welded Steel and Open-Hearth Iron Boiler Tubes, Specifications for, ASTM A 178-58T; ASA B36.13-1959 (Revision of ASTM A 178-56T; ASA B36.13-1958)

Medium-Carbon Seamless Steel Boiler and Superheater Tubes, Specifications for, ASTM A 210-58T; ASA B36.15-1959 (Revision of ASTM A 210-55T; ASA B36.15-1956)

Welded and Seamless Open-Hearth Iron Pipe, Specifications for, ASTM A 253-58; ASA B36.23-1959 (Revision of ASTM A 253-55T; ASA B36.23-1956)

Seamless Low-Carbon and Carbon-Molybdenum Steel Still Tubes for Refinery Service, Specifications for, ASTM A 161-58T; ASA B36.27-1959 (Revision of ASTM A 161-55T; ASA B36.27-1956)

Seamless Cold-Drawn Low-Carbon Steel Heat-Exchanger and Condenser Tubes, Specifications for, ASTM A 179-56T; ASA B36.28-1959 (Revision of ASTM A 179-56T; ASA B36.28-1958)

Seamless Cold-Drawn Intermediate Steel Heat-Exchanger and Condenser Tubes, Specifications for, ASTM A 199-58T; ASA B36.29-1959 (Revision of ASTM A 199-56T; ASA B36.29-1958)

Seamless Intermediate Alloy-Steel Still Tubes for Refinery Service, Specifications for, ASTM A 200-58T; ASA B36.-30-1959 (Revision of ASTM A 200-55T; ASA B36.30-1956)

Seamless Carbon - Molybdenum Alloy-Steel Boiler and Superheater Tubes, Specifications for, ASTM A 209-58T; ASA B36.31-1959 (Revision of ASTM A 209-55T; ASA B36.31-1956)

Electric-Resistance-Welded Steel Heat-Exchanger and Condenser Tubes, Specifications for, ASTM A 214-58T; ASA B36.32-1959 (Revision of ASTM A 214-56T; ASA B36.32-1958)

Electric - Resistance - Welded Carbon - Molybdenum Alloy-Steel Boiler and Superheater Tubes, Specifications for, ASTM A 250-58T; ASA B36.34-1959 (Revision of ASTM A 250-55T; ASA B36.-34-1956)

Seamless and Welded Steel Pipe for Low-Temperature Service, Specifications for, ASTM A 333-58T; ASA B36.40-1959 (Revision of ASTM A 333-55T; ASA B36.40-1956)

Seamless and Welded Steel Tubes for Low - Temperature Service, Specifications for, ASTM A 334-58T; ASA B36.-41-1959 (Revision of ASTM A 334-55T; ASA B36.41-1956)

Sponsors: American Society of Mechanical Engineers; American Society for Testing Materials

SAFETY

In Board of Review

Installation of Blower and Exhaust Systems for Dust, Stock, and Vapor Removal or Conveying, Z33.1- (Revision of Z33.1-1950)

Sponsor: National Fire Protection Association

In Standards Board

Safety Code for the Installation and Operation of Pulverized-Fuel Systems, NFPA No. 60; ASA Z12.1- (Revision of Z12.1-1959)

Safety Code for the Prevention of Dust Explosions in Starch Factories, NFPA No. 61A; ASA Z12.2- (Revision of Z12.2-1959)

Safety Code for the Prevention of Dust Explosions in Flour and Feed Mills, NFPA No. 61C; ASA Z12.3- (Revision of Z12.3-1956)

Safety Code for the Prevention of Dust Explosions in Terminal Grain Elevators, NFPA No. 61B; ASA Z12.4- (Revision of Z12.4-1956)

Safety Code for the Prevention of Dust Explosions in Woodworking Plants, NFPA No. 663; ASA Z12.5- (Revision of Z12.5-1953)

Safety Code for the Prevention of Dust Explosions in Sugar and Cocoa Pulverizing Systems, NFPA No. 62; ASA Z12.6- (Revision of Z12.6-1959)

Safety Code for the Prevention of Dust Explosions in Coal Preparation Plants, NFPA No. 653; ASA Z12.7- (Revision of Z12.7-1959)

Safety Code for the Prevention of Dust Explosions in Wood Floor Manufacturing Establishments, NFPA No. 662; ASA Z12.8- (Revision of Z12.8-1946)

Safety Code for the Prevention of Dust Ignitions in Spice Grinding Plants, NFPA No. 656; ASA Z12.9- (Revision of Z12.9-1953)

Safety Code for the Prevention of Dust Explosions in the Manufacture of Aluminum Bronze Powder, NFPA No. 651; ASA Z12.11- (Revision of Z12.11-1953)

Safety Code for the Prevention of Sulphur Fires and Explosions, NFPA No. 655; ASA Z12.12- (Revision of Z12.12-1950)

Safety Code for the Prevention of Dust Ignition in Country Grain Elevators, NFPA No. 64; ASA Z12.13- (Revision of Z12.13-1956)

Safety Code for Explosion and Fire Protection in Plants Producing or Handling Magnesium Powder or Dust, NFPA No. 652; ASA Z12.15- (Revision of Z12.15-1953)

Safety Code for the Prevention of Dust Explosions in the Plastics Industry, NFPA No. 654; ASA Z12.16- (Revision of Z12.16-1946)

Safety Code for the Prevention of Dust Explosions in Confectionery Manufacturing Plants, NFPA No. 657; ASA Z12.18- (Revision of Z12.18-1953)

Safety Code for Processing and Finishing of Aluminum, NFPA No. 65; ASA Z12.19-

Sponsor: National Fire Protection Association

Reaffirmation Being Considered

Safety Code for Mills and Calenders in the Rubber Industry, B28.1-1949

Sponsor: National Safety Council

NEWS ABOUT AMERICAN STANDARDS PROJECTS

Fundamentals Governing the Design and Operation of Local Exhaust Systems, Z9—

Sponsors: Air Moving and Conditioning Association; American Industrial Hygiene Association; American Society of Heating, Refrigerating, and Air Conditioning Engineers

After many years during which a Z9 report on fundamentals relating to the design and operation of exhaust systems has been available for comment, the Z9 committee has now completed a draft standard incorporating up-to-date information and ideas on the subject. Entitled "Fundamentals Governing the Design and Operation of Local Exhaust Systems," the proposed standard selects the basic requirements that must be applied in any exhaust system for satisfactory venting of fumes and gases at the point of their origin. It is expected that it will offer companies, industrial hygienists, safety engineers, and state health departments an easy-to-follow basic guide on how to design and operate a satisfactory exhaust system. The new standard will be closely related to the American Standard Ventilation and Safe Operation of Open-Surface Tanks, Z9.1-1951, which specifies how much ventilation is required for effective removal of vapors and toxic fumes.

Ball and Roller Bearings, B3—

Sponsor: Anti-Friction Bearing Manufacturers Association

Sectional Committee B3 at a meeting August 11 authorized that its membership be balloted to determine the acceptability of a new class of bearing tolerances, as part of a general revision of American Standard B3.5-1951, Tolerances for Ball and Roller Bearings. Identified as ABEC-9,[1] the new tolerances were submitted by Clifford Menard, Heald Machine Company, representative of the National Machine Tool Builders Association on Sectional Committee B3. The proposed new tolerances are essentially the standard used by the Heald Machine Company. They were reviewed by bearing manufacturers, members of AFBMA, within the past year, and with a few minor changes, were adopted as the AFBMA standard. They are expected to meet the demand by industry for precision higher than the standard ABEC-7, the present top precision class of bearing.

[1] ABEC, derived from the initials of the Annular Bearing Engineering Committee of the AFBMA, with an appropriate numeral, is the designation used by AFBMA and in American Standards to identify the different classes of bearings.

Terminology in the Field of Automatic Controls, C85—

Sponsor: American Society of Mechanical Engineers

An attempt has been made by Committee C85 to compile a complete, standardized terminology in the field of automatic controls. The document has now been issued as a Proposed American Standard for distribution to all parties interested. Copies of the draft standard can be obtained free of charge from Frank Philippbar, Standards Manager, ASME, 29 West 39th Street, New York 18, N. Y. Comments and suggestions regarding the draft will be welcome.

Heat Exchangers for the Chemical Industry, B78—

Sponsors: Manufacturing Chemists' Association, Inc; Tubular Exchanger Manufacturers Association

Twenty-eight volunteers from the B78 committee have been assigned by chairman A. H. Knoll of Procter and Gamble to three subcommittees to evolve standards for heat exchangers for use in the chemical industry. Members of the subcommittees will represent the chemical industry, heat exchanger manufacturers, technical societies, and other interested groups.

Approved scope of Committee B78 is the development of standards for shell and tube heat exchangers employing plain or low fin tubing suitable for pressures up to 600 psi, including fixed tube sheet units (with or without expansion joints), U-tube units, internal floating head units, external packed floating head units, and kettle type reboilers.

Announcing the chairman and membership of each of the three subcommittees, Mr Knoll said: "Primarily, Subcommittee 1 will investigate and recommend over-all procedure. It will review and summarize the chemical industry's requirements and develop standards for general construction features for the full range of heat exchangers in common use in the industry. These general construction standards must, of course, be acceptable both to users and fabricators." Chairman of Subcommittee 1 will be R. J. Armstrong of E. I. du Pont de Nemours & Co, Inc.

Mr Knoll described the work of

A. H. Knoll

Subcommittee 2 as being concerned with external dimensions of heat exchangers, nomenclature, and identification. "This subcommittee," he said, "will recommend standards for critical external installation dimensions and the location of nozzles and supports. In addition, it will develop parts nomenclature for the five types of exchangers we are currently concerned with, and recommend an identification code to show the type and size of the exchanger and its design features." He named Donald E. Kropp of the Pfaudler Company as chairman of Subcommittee 2.

Subcommittee 3 will concentrate on standards for internal parts and arrangements. Its objective, according to Mr Knoll, will be to determine the extent to which it is practicable and acceptable to standardize over the full range such present variables as tube sheet layout, tube size, design pressure, materials of construction, and other features. "The objective," he said, "is to provide, if possible, a completely standardized series of units in the smaller sizes." Heading Subcommittee 3 will be R. K. Tyson of Schutte and Koerting Company.

Subcommittee 1 held its first meeting on September 22-23 at the offices of the American Standards Association in New York.

Mr Knoll, who heads the factory service department of the engineering division of Procter and Gamble, is vice-chairman of the Manufacturing Chemists' Association's Mechanical Technical Committee. He was chairman of a subcommittee which studied the need for this standards program and which recommended that ASA be approached through the Chemical Industry Advisory Board to approve the program. He has also been active as chairman of MCA's subcommittee considering the feasibility of standards for thin-walled carbon steel piping.

Vice-chairman of Committee B78 is A. M. Michell of Struthers Wells Corporation. Mr Michell has been closely associated with the technical activities of Tubular Exchanger Manufacturers Association for about 20 years, particularly in the development of TEMA standards. He was chairman of the TEMA technical committee when the third edition of the standards was prepared. He has also directed activities in the Struthers Wells Company in the standardization of heat exchanger and similar equipment for sale to the chemical and process industry.

Regarding the current ASA project Mr Michell said: "As TEMA representative on the ASA B78 committee, I can state that the TEMA members are very much interested in standardization which will benefit the heat exchanger user and the manufacturer. The TEMA group has invested a large amount of time and money in its own standardization program and is greatly interested in any constructive work along this line."

F. G. Stephenson

Secretary to B78 is F. G. Stephenson of the Manufacturing Chemists' Association. Mr Stephenson came to MCA in 1955 from a metal forming company in Ohio as staff supervisor of the chemical safety data sheet program. He is secretary to MCA's General Safety Committee and recently succeeded C. H. Mayhood as secretary to ASA Sectional Committee B73 on centrifugal pumps for chemical industry use.

Radio and Electronic Equipment, C16—

Sponsor: Institute of Radio Engineers

Donald G. Fink, director of research, Philco Corporation, recently took office as chairman of Committee C16.

Donald G. Fink

After graduation from Massachusetts Institute of Technology in 1933 with the degree of B.S. in electrical communications, Mr Fink served as research assistant on the staff of the departments of geology and electrical engineering at MIT. He joined the staff of the journal *Electronics* and served as its editor-in-chief from 1946 to 1952. Obtaining a leave of absence from his editorial duties in 1941, he became a member of the staff of the Radiation Laboratory at MIT. He then transferred to the Office of the Secretary of War as an expert consultant on radio navigation and radar. In 1946 Mr Fink participated in the atom bomb tests at Bikini as a civilian consultant on the staff of Admiral Blandy.

Mr Fink joined the research staff of the Philco Corporation in 1952, where he was appointed to his present position in January 1959.

Author of numerous books in the field of communications and radar engineering, Mr Fink is a Fellow of the Institute of Radio Engineers, the American Institute of Electrical Engineers, and the Society of Motion Picture and Television Engineers. He is also a member of the Board of Directors and Executive Committee of IRE. In 1951 he was awarded the Radio Fall Meeting Plaque for "many contributions to the television industry."

Metal Drums and Pails, MH2—

Sponsor: Steel Shipping Container Institute

"The MH2 committee is now bringing up to date the first ten standard specifications published for steel shipping containers," reports Richard S. Sawyer, recently elected co-chairman with O. X. Pitney. Mr Sawyer is vice-president of the United Steel Barrel Company of Philadelphia, and is co-chairman of the Technical Committee of the Steel Shipping Container Institute. Mr Pitney is vice-president—operations—of the Rheem Manufacturing Company's Container Division, Linden, N. J. Secretary of the recently organized committee is Miss L. B. Miller, secretary and assistant treasurer of Steel Shipping Container Institute and assistant secretary of Synthetasine Protective Coatings, Inc, New York.

"The present phase of the committee's work includes clarification

O. X. Pitney

of terminology and a formulation of tare weights," Mr Sawyer reports. "Next the committee will develop proposed standard specifications for nine additional containers being used in volume by petroleum, chemical, paint, food, and other industries. Completion of this part of the program will mean the establishment of standard specifications for 19 containers which represent by far the great majority of steel shipping containers now being used.

"Following this, efforts will be devoted to keeping established American Standard specifications current, in line with newest production techniques and correct as far as users' requirements are concerned. In addition, the committee will be on the alert to add new standards as needed."

Richard S. Sawyer

It is expected that the American Standard specifications for drums and pails will find general acceptance throughout the United States, Mr Sawyer comments. Already users of containers in all parts of the globe are finding it economical, more efficient, and more convenient to specify packages to standard specifications.

Mr Sawyer entered the steel shipping container field in 1941 with the Rheem Manufacturing Company, and joined the United Steel Barrel Company of Philadelphia in 1946.

Mr Pitney joined the Rheem Manufacturing Company in 1943 and since then has held a variety of service, engineering, production, and executive positions.

Miss Miller handled public relations and publicity for the Milk Industry Foundation, edited a house organ for the Dairy Industries Supply Association, and was assistant to

L. B. Miller

the director of advertising and publicity of CARE before taking on her present responsibilities in 1949. She is a member of the American Society of Association Executives, and New York Society of Association Executives.

Lawn Mowers, B71—

Sponsor: Lawn Mower Institute

A first draft of a safety code for rotary blade power lawn mowers has been prepared by two subcommittees of the Lawn Mower Institute. This draft has just been mailed to all members of Sectional Committee B71 for study and comment.

Aerial Passenger Tramways, B77—

Sponsors: American Society of Mechanical Engineers; Eastern Ski Area Operators Association

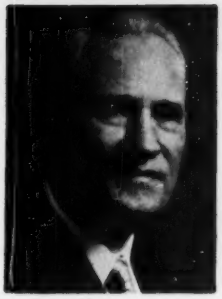
Various subcommittees have just completed a draft of a safety code for aerial passenger tramways. This draft is now being duplicated and will soon be mailed to all members of Sectional Committee B77.

Rock-Dusting Coal Mines to Prevent Coal Dust Explosions, M13—

Sponsor: American Institute of Mining, Metallurgical, and Petroleum Engineers

R. W. Stahl has been appointed secretary of Committee M13. A graduate of Pennsylvania State University, Mr Stahl has devoted his career to mining engineering. He served as inspector and engineer of the Bureau of Mines and acted as advisor on coal problems in Turkey, Germany, and Belgium. In his present position as mining engineer of the Bureau of Mines, Mr Stahl works on problems concerning ventilation, dust suppression, fire protection, and pillar extraction.

R. W. Stahl



by **Cyril Ainsworth**

DINNSA

(Does Industry Need a National Standards Agency?)

CONTINUING THE ANALYSIS of the Sectional Committee Method, it is appropriate to comment that at times ASA may seem to place special emphasis on this method in its literature and public discussions. This is probably because in this method the democratic principles on which ASA machinery operates are so neatly wrapped up in a single package that it becomes a simple matter to use the method to describe ASA principles and operations. On the other hand, this emphasis may be misunderstood. As a result some readers and listeners may gain the impression that the sectional committees are technical committees of ASA and that, through the committee operations, ASA is engaged in the development of standards. If what follows seems to repeat previous discussions of ASA principles, it is only so because of the necessity of making it so unmistakably clear that ASA does not formulate standards that all misunderstanding will be eliminated.

In the initiation of work under the Sectional Committee Method, the part taken by ASA consists of the following steps: First, ASA organizes a conference of all groups presumed to be concerned with the subject and scope of the standards proposed for development, so that these groups can reach their own decision on the use of the Sectional Committee Method. Second, ASA makes a judicial review of the record of the conference to determine the existence of a national consensus on use of the Sectional Committee Method. Third, ASA approves the personnel of the committee when it is organized to insure (1) that all groups substantially concerned with the proposed standardization work have had an opportunity to appoint representatives of their own choosing for membership on the committee; and (2) that substantial balance exists between the various classifications of members (producers, consumers, general interests), so that no one classification can dominate the operations of the committee through a disproportionate number of members. Fourth, ASA insures that the national group or groups chosen to serve as sponsors of the project are competent in leadership and have sufficient resources to give administrative support and direction to the project. All these actions are not taken on behalf of the ASA itself, but on behalf of the groups concerned, to insure that the interests of all are fully protected. They are also taken to insure as far as possible that the committee is organized so that it can function under its own steam, and from an organizational point of view that it will be able to complete its task.

The actions of ASA as described above are procedural, judicial, and administrative. When they have been completed, the technical work in developing the desired standard can commence. This is where ASA steps out of the picture except to be of every possible service to the sponsors and the committee.

ASA machinery operates next when a standard developed by the committee is transmitted by the sponsors to ASA for approval as American Standard. At this point the function of ASA is the judicial one of determining the existence of a consensus in support of the standard. This operation is the same as that taken in regard to standards submitted under any of the prescribed methods.

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